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In Two Sections
Section 1

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Providing Management with a Sense of Direction through the Reporting System

by ROBERT P. KEEHN

TODAY'S MANAGEMENT must be well informed, must know where the company is headed and must know immediately if it is getting off course. Correspondingly, today's accountant, whether his title be that of treasurer or controller, is responsible for providing a reporting system which will give other management personnel the facts they need—and when they need them—in order to permit proper guidance of the business. This is as it should be, for the product of the accountant's labors is generally reflected in the reporting system.

But is today's accountant doing a complete job? Is he fulfilling his responsibility? Is he providing his management with the facts in a manner which is understandable, so that action, if needed, can be readily taken? It is in this area that the accountant can make a great contribution to the success of his company.

The accountant needs to be thoroughly familiar with all facets of the business, for the reporting system should be geared to the needs of the business, rather than making the business fit a system. In achieving this, the accountant can use his own creative powers and initiative, within the framework of acceptable accounting practice, Initiative is the key. The accountant must be a self starter. He must have the foresight and the courage to try new approaches and to concentrate on those things which are important to his business.

The reporting system needs to be kept simple. To be effective, a report must be understood. Quite often the lack of simplicity can be a stumbling block. The system gets cluttered with detailed and voluminous reports requiring large staff to gather and assemble the data. It is costly to prepare such reports and they are likely to remain unread. Then, not only the excess costs but the justifiable cost, also, are wasted.

No reporting system is perfect and it is this ever-striving for perfection, coupled with the changing times and the vicissitudes of the business itself, which makes the accountant's task a most challenging and rewarding one. Here we are going to take a look at our company's reporting system, a system which we feel is molded to fit our requirements, for it concentrates on those things which

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are important to us. It is simple yet sufficiently inclusive to serve our needs. An interesting point about our system is that it emphasizes the forward look. Projections into the future are commonplace with us. True, we compare to prior months and years, but we place strong emphasis on looking into the future—forward planning.

The Operating Budget

During the last quarter of the year, an operating budget is prepared for the coming year. The budget presented to our staff and management personnel contains an analytical letter highlighting the major differences (and their causes), between the figures and those of the current year. This operating budget contains a projected balance sheet as of the close of the coming year, based on meeting the budget. Included in the budget are detailed schedules of major items of expense. An excerpt from the table of contents reveals schedules analyzing paper costs, ink costs, departmental operating supplies and expense and maintenance costs.

The sales forecast is converted to production units and reported in an "analysis of factory production by departments." This estimated departmental production is converted to hours required, production per clock hour, and labor cost per production unit, to be used for comparative purposes throughout the coming year. An interesting schedule included is the production by machine in our major producing department. The format of this schedule is shown in Exhibit 1. (Note—All figures used in this paper and exhibits to it are illustrative only.) This report shows us from which machines we expect to obtain the required production for the budgeted year. The actual production, material usage, waste and hours by machine is accumulated each month throughout the year for comparison to this budget.

ANALYSIS OF COATING MACHINES
FOR THE YEAR ENDING DECEMBER 31, 1960

Machine No.	Lbs. Good Production	Lbs. Waste	% Waste	Clock Hours	Lbs. Prod. Per Hour
1	3,700,000	100,000	2.7	9,250.0	400.0
2	2,800,000	95,000	3.4	8,000.0	350.0
3	2,500,000	98,000	3.9	10,000.0	250.0
4	3,100,000	125,000	4.0	10,333.3	300.0
etc.	-	-	-	-	-
Total	25,700,000	250,000	3.7	60,000.0	428.3

EXHIBIT 1

CASH PROJECTION - BY MONTH
FOR THE YEAR ENDING DECEMBER 31, 1960

	Jan.	Feb.	Mar.	Apr.	etc.
Cash In Bank-Beg. of Month	$200,000	275,000	322,000	112,000	
Funds Provided:					
By Profits (Before Taxes)	100,000	80,000	90,000	85,000	
Plus Depreciation	15,000	15,000	15,000	15,000	
By Decrease in Working Capital	-	2,000	-	-	
Total Funds to Account For	315,000	372,000	427,000	212,000	
Funds Applied:					
Increase in Working Capital	10,000	-	40,000	25,000	
Purchase of Fixed Assets	30,000	50,000	25,000	10,000	
Income Taxes	-	-	250,000	-	
Other - Explain	-	-	-	5,000	
Total Funds Applied	40,000	50,000	315,000	40,000	
Cash In Bank-End of Month	$275,000	322,000	112,000	172,000	

EXHIBIT 2

The operating budget also contains a statement of source and application of funds and a Cash Projection by Month for the budgeted year (Exhibit 2). This picks up in funds provided the net profit before income taxes and these are reported in the funds applied section under the month when they are actually due, which gives us a clear picture of the flow of cash. If borrowing is contemplated, the receipt of money borrowed would be shown separately in the funds provided section and the repayments would be shown in the funds applied section. By following this, practice cash, income taxes and notes payable are eliminated from the computation of increases and decreases in working capital and shown separately on the report.

The operating budget is not adjusted during the year. Any major changes from the budget are reported in the analytical letter prepared monthly for the financial statements and serve to explain variances. The monthly financial statements will be explained later in this paper.

— *And the Reports*

Probably the most popular report in our company and no doubt the simplest to prepare is the Daily Billing Report, a sample of which is shown in Exhibit 3.

DAILY BILLING REPORT
Date_____

	This Month	Last Month
No. of Runs		
Previous Billings		
Today's Billings		
Total to Date		
Daily Average		

_____More Shipping Days this Month

Estimated Billings this Month_____

EXHIBIT 3

Each day we obtain a revised projection of our monthly sales figure which is basic information used throughout much of our planning. The estimated billings for the month is determined by multiplying the remaining shipping days by the daily average and adding this result to the total to date. By the second working day following the close of the month, we know the actual monthly sales volume. Since our monthly financial statements are compiled on a direct costing approach, i.e., separation of variable and period expenses, we are able to quickly obtain an estimated profit figure which is surprisingly accurate. Thus, in effect, we have our operating results for the month by the second or third working day of the next one. This technique provides the following figures:

	Amount	*% to sales*
Sales volume	(1)	100.00%
Variable costs to manufacture		(2)
Gross margin		
Other variable costs		(3)
Net margin—profit contribution		
Period costs	(4)	
Net profit before taxes		

Although the result is approximate, it can be computed with fairly reliable data obtained as follows (the numbers below are those keyed above):

1. The actual sales volume obtained from the daily billing report for the last day of the month.

2. & 3. By keeping in close touch with the major items of expense in these categories, especially with those which have a tendency to fluctuate more widely than others, and applying this knowledge to the actual experience for the last two or three months or to the budget, an intelligent estimate of ratios to sales volume can be made.

4. Here again, by checking the major items of expense (especially those which tend to vary from budget) and reflecting this in the average monthly cost for the past two or three months or with the budgeted cost, a good estimate can be made of the period expenses for the month just ended.

On approximately the fifth working day of the month, we prepare the quarterly cash budget which gives the estimated cash position at the close of each of the next three months. This report is updated monthly and is shown in Exhibit 4.

Most of our reports carry a comment section or analytical letter, the purpose being to assist the reader of the report and help save his time. It soon becomes obvious that the accountant must have a close working knowledge of what goes on in all facets of the business. The accountant who does not have his fingers on the pulse of the business is certainly going to impair his efficiency in reporting financial conditions and trends.

As soon as the "penciled" figures of the monthly financial statements are ready, a flash report of results is drawn off to present to staff and management personnel. This report is confined to one side of one sheet, size 8½ x 11". This report in our company is probably subject to more change in format than any other report. The type of information contained in it will vary from time to time depending upon conditions, changes that should be highlighted immediately, trends, etc. The report may be in narrative form, graph form, or some other style. A sample of a recent flash report is shown in Exhibit 5. Here again, we provide that forward look. As in the daily billing report, where we projected the estimated sales volume for the month, in Exhibit 5 we have projected the estimated sales volume for the year and also the estimated net profit for the year. Throughout our entire reporting system, we place emphasis on looking ahead. This we feel is important. Too often the accountant will be content to report historical figures without attempting to analyze or project. This forces the reader of the detailed reports to wade through them laboriously, analyze them, project, etc., while the accountant demotes himself to the roll of a clerk.

By using direct costing principles in statement presentation and analysis, it is a simple matter to compute the break-even point. This is determined by dividing the net margin percentage into the period costs. It would also be a simple

QUARTERLY CASH BUDGET

Revised Monthly — For the Three Months Ending DECEMBER 31, 1960

	For the Month of		
	Oct.	Nov.	Dec.
Cash In Bank - Beg. of Month	$ 200,000	285,000	358,000
Receipts --			
Collections on Receivables	800,000	850,000	750,000
Other Receipts	-	-	5,000
Total Cash to Account For	1,000,000	1,135,000	1,113,000
Disbursements --			
Payroll:			
Factory	100,000	100,000	100,000
Office	50,000	50,000	50,000
Vouchers Payable:			
Raw Material	330,000	400,000	550,000
Operating Supplies	75,000	75,000	85,000
Freight:			
Outgoing	50,000	60,000	40,000
Incoming	20,000	25,000	35,000
Miscellaneous:			
Travel Expense	10,000	12,000	8,000
Payroll Taxes	20,000	25,000	20,000
Miscellaneous	10,000	10,000	10,000
Fixed Assets	50,000	20,000	15,000
Income Taxes	-	-	100,000
Bonuses	-	-	25,000
Total Disbursements	715,000	770,000	1,038,000
Cash In Bank - End of Month	285,000	358,000	75,000
Bank Borrowing Required	-	-	-
Cash In Bank - End of Month	$ 285,000	358,000	75,000

Comments:

EXHIBIT 4

matter to show the break-even point in graphic form as a flash report each month, with a comparison to the budgeted break-even point and explanation of differences.

The monthly financial statements in detailed form, typed, assembled and bound are usually ready for distribution to the staff and management personnel by the fifteenth of the month. The exhibits and schedules included in the

FINANCIAL HIGHLIGHTS
For the Nine Months Ended September 30, 1960

	1960	1959
Operating results:		
Sales volume	$8,000,000	$7,000,000
Net profit before income taxes	850,000	700,000
% to sales	10.63	10.00
Net profit to accumulated earnings	430,000	375,000
% to sales	5.38	5.36
Financial position (at end of period)		
Cash available	200,000	175,000
Receivables	950,000	800,000
Inventories	750,000	600,000
Working capital	1,800,000	1,500,000
Current ratio	3.50	3.40
Notes payable	-	100,000
Total assets	5,000,000	4,600,000
Source and use of funds		
Funds provided from:		
Net profit	430,000	375,000
Depreciation	100,000	95,000
Total	530,000	470,000
Funds used for:		
Increase in working capital	379,250	219,000
Addition to fixed assets	150,000	100,000
Reduction of long term indebtedness	-	150,000
Other items (Misc.)	750	1,000
Total	530,000	470,000
Employees (at end of period)	400	375
Annual operating results (1960 Estimated - 1959 Actual)		
Sales volume	10,000,000	8,750,000
Net profit to accumulated earnings	1,000,000	800,000
% to sales	10.00	9.14
% to net worth at beg. of year	23.00	20.0
% to total assets at beg. of year	20.00	18.0
Earnings per share common stock	150.00	125.00

EXHIBIT 5

monthly financial statements are similar to the exhibits and schedules shown in the annual operating budget and contain the comparative data. Exceptions and variations are highlighted and explained in the analytical letter which is a part of the monthly financial statements. This analytical letter tells the story of what happened during the month, the reasons for the variations and is generally sufficiently complete so that the reader can get the picture without having to study the detailed statements. Outside of special reports no doubt the flash report and analytical letter to the monthly financial statements provide the accountant with the greatest opportunity to use his creative ability.

Although we do not adjust the annual operating budget during the year and any changes are explained in the monthly analytical letter, we do operate on

the flexible budget technique, that is, the variable costs are properly related to the sales volume for the month. The monthly budget is determined as follows (shown in summary form):

	Monthly budget (adjusted)	
	Amount	*% to sales*
Sales volume	(1) ($)	100.00%
Variable costs		(2) ( )
Net margin	(3) ( )	
Period costs		
Net period (before taxes)		

(1) Actual sales volume for the month.
(2) Variable cost sales ratios taken from the annual operating budget.
(3) Period costs taken from the annual operating budget, divided by twelve.

By completing the three missing figures, the monthly budget can be completed in its entirety on an adjusted basis with actual sales volume. And you can readily see that it can be expanded to include a sufficient amount of detail through the use of supporting schedules. Generally there is included in the monthly analytical letter accompanying the financial statements an explanation of the reason for a variation in sales volume from the original budget for the year, i.e., volume variance, product mix variance and selling price level changes. All major variations from budget, over or under, are explained.

Following Up Receivables, Capital Outlay, Maintenance

Significant trends are highlighted. For example, the rate of collections on accounts receivable is watched very closely. Occasionally a recapitulation of the accounts receivable situation is shown as follows:

	Accounts receivable balance at close of month	*Portion past due*	*% past due to A./R. balance*
December	$1,000,000	400,000	40.0
January	950,000	389,500	41.0
February	975,000	351,000	36.0

	Collections this month	*Prev. months total sales*	*% Collection to prev. mos. sales*
January	$ 800,000	800,000	100.0
February	675,000	750,000	90.0
March	800,000	700,000	114.3
Total	$2,275,000	2,250,000	101.1

Another item generally reported on in the monthly analytical letter is a listing of the capital assets under construction or committed for, as follows:

Job No.	*Description*	*Date authorized*	*Amount committed for*	*Spent to date*	*Balance unpaid*	*Estimated completion date*
Totals				(1)	(2)	

If the list is too lengthy, only the major items are listed. In any event, the totals are per the complete listing. Total (1) above will agree with the balance sheet item, capital assets under construction. Total (2) above tells the staff and management personnel how much money is still committed for.

In addition to the usual balance sheet, income account and supporting schedules, the monthly financial statements also include analysis schedules on major items of expense. For example, maintenance is a major item with us and, in order to better control this expense, we break down the elements com-

Schedule "9" ANALYSIS OF MAINTENANCE COSTS
FOR THE MONTH AND NINE MONTHS ENDED SEPTEMBER 30, 1960

	For the Month Ended Sept. 30, 1960			For the Nine Months Ended Sept. 30, 1960		
	Budget	Actual	Variance	Budget	Actual	Variance
Salaries & Wages:						
Maint. Shop - Coating Dept.-Schedule 10	$ 6,500	6,000	(500)	58,500	53,250	(5,250)
Maint. Shop - Slitting Dept.	2,000	2,200	200	18,000	17,500	500
etc.	-	-	-	-	-	-
Carpenters Wages	5,000	5,500	500	45,000	46,000	1,000
Custodians Wages	7,500	7,600	100	67,500	67,700	200
etc.	-	-	-	-	-	-
Mach. & Equip. Repair Parts, etc.:						
Coating Dept.-Sch. 10	6,000	6,500	500	45,000	55,600	10,600
Slitting Dept.	2,000	2,300	300	18,000	17,300	700
etc.	-	-	-	-	-	-
Truck Maint. & Repairs:						
Repairs	200	185	(15)	1,800	1,900	100
Gas & Oil	600	700	100	5,400	5,350	(50)
Bldg. Maint. & Repairs	3,000	1,800	(1,200)	27,000	26,750	(250)
Land Improvement-Parking Lot, etc.	200	50	(150)	1,800	1,500	(300)
Other Costs:						
Light Fixtures & Tubes	700	750	50	6,300	6,250	(50)
Custodian Supplies	800	725	(75)	7,200	7,000	(200)
etc.	-	-	-	-	-	-
Total	$50,000	51,510	1,510	450,000	438,550	(11,450)

EXHIBIT 6

Schedule 10 ANALYSIS OF MAINTENANCE COSTS - COATING DEPT.
FOR THE MONTH AND NINE MONTHS ENDED SEPTEMBER 30, 1960

Machine No.	For the Month Ended Sept. 30, 1960 Labor Cost	Repair Parts	Total Maint.	For the Nine Months Ended Sept. 30, 1960 Labor Cost	Repair Parts	Total Maint.
1	$ 300	300	600	3,000	2,750	5,750
2	250	500	750	2,000	4,000	6,000
3	200	50	250	1,800	700	2,500
4	350	600	1,850	2,700	5,350	8,050
etc.	-	-	-	-	-	-
Total-Sch. 9	$6,000	6,500	12,500	53,250	55,600	108,850

EXHIBIT 7

prising the total, as shown is Exhibit 6. With over 60 percent of the maintenance labor and repair parts charged to the costing department, another supporting schedule is included as shown in Exhibit 7. The breakdown here shows the total maintenance charged to each machine in this major department. It tells which machines account for the excessive maintenance charges. Furthermore, by correlating this report with the production and waste report by coating machines, Exhibit 1, it is a simple matter to determine the profitability of each machine and set up an intelligent machine replacement program.

The Essentials

And so it goes! We feel that our reports blend together to make a well-rounded reporting system, concentrating on those things which are important to us. How did we get it? Listed below are items we feel are helpful in developing and improving a reporting system:

1. Know your company—its organization, basic objectives, policies and procedures, manufacturing processes, etc.
2. Know your job—be familiar with all techniques, i.e., direct costing, flexible budgeting, latest developments in data processing, etc.
3. Concentrate on those things that are important to your company; concern yourself with maximizing its profits.
4. Develop the courage and initiative to try new approaches. If need be, select the best features of various techniques and blend them together for your company's use.
5. Keep your reporting system simple. It is your job to clear away the cobwebs of confusion, not add to them. Present the facts so that they can be easily understood.
6. Give your reporting system the foreward look.

Remember that it is your responsibility, in reporting, to provide that sense of direction, which management must have in today's market.

Company Administered Salesmen Expense Drafts

by ROBERT BEARDSLEY

THE BASIC IDEA of employees reimbursing themselves for their weekly traveling expenses is not new, and has been successfully used by other companies throughout the United States for some time. The uniqueness of our expense draft system lies in the fact that it is solely administered by our company and the degree to which the related paperwork has been streamlined and mechanized. The details of coordinating and controlling such a system, affecting more than a thousand salesmen, might be of some interest to others.

Layout of Expense Drafts

Each salesman is supplied with an expense draft book containing 52 individual drafts, one for each week of a calendar year. The expense draft forms are on tabulating cards in which our tabulating department prepunches and preprints the book number, draft number and week ending date. Each salesman has been assigned a separate book number which is the same as the man number assigned to him for payroll purposes. Each draft in a specific draft book contains the same book number and, in addition, is assigned a draft number. The draft numbers run consecutively from 1 through 52. The week ending dates for each week of a specific calendar year are also shown on the drafts. For example, the drafts assigned to Joe Doe, whose man number is 5696, would be as follows:

Draft No.	Book No.	W/E Date
1	5696	1/4/58
2	5696	1/11/58
3	5696	1/18/58
etc.	etc.	etc.

Each draft is valid only for the week ending date shown on the draft itself. The book numbers and draft numbers are used internally to match and control the drafts assigned the salesman. The maximum amount for which the draft may be cashed is preprinted directly on the draft; presently $100 is being used for all drafts. Two spaces are provided on the draft for the drawee's signature.

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Salesman must countersign all 52 drafts in the space provided in the upper left-hand corner in the presence of his district or territory manager at the time he receives his draft book. The second signature, in the lower right-hand corner, is made by the salesman in the presence of the party cashing the draft. Drawee's signature must agree with the signature in the upper left-hand corner.

The draft books are kept in an envelope, containing on the outside of the envelope the basic instructions on how to handle the expense drafts. This envelope provides ready reference to the instructions, but also protects the drafts, so that tabulating department can handle them better later on. In addition to the instructions on the envelope, the salesman is supplied with a procedure bulletin, which spells out in more detail all phases of the expense draft system.

Handling by Sales Personnel

Regular handling. Salesmen are instructed to complete their expense reports (Exhibit 1) in the regular way at the end of each week and to double-check their calculations, since errors are burdensome for both salesmen and for the

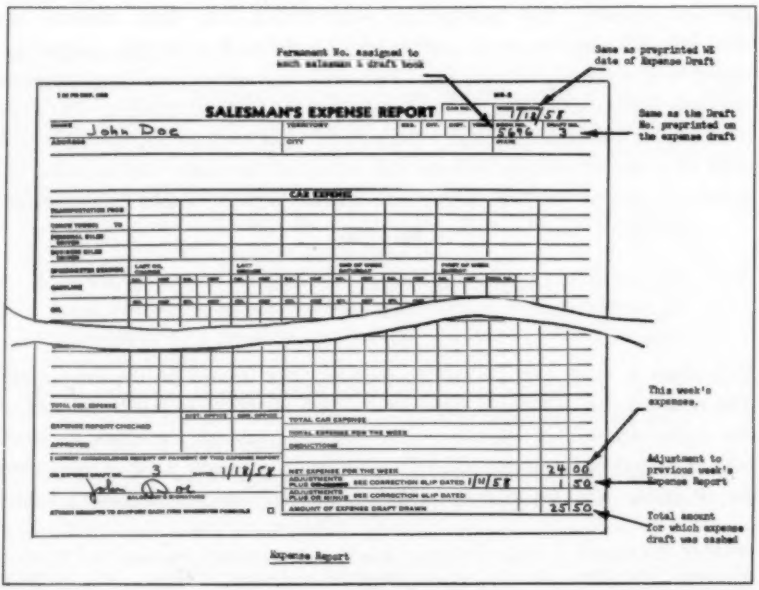


EXHIBIT 1

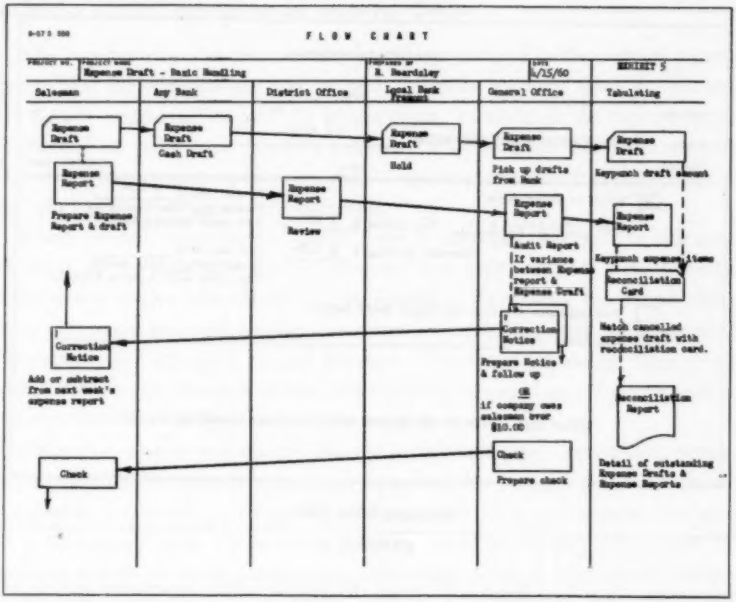
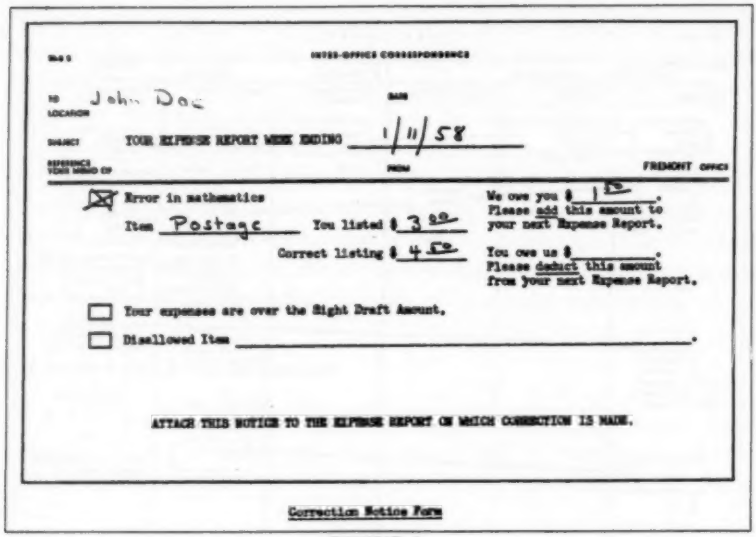


EXHIBIT 2

general office. (For basic flow of paperwork see Exhibit 2.) The book number, draft number and week ending date of the expense draft for the specific week in question must always be shown in the spaces provided for on the expense report. Only one draft shall be drawn each week and the printed week ending date on the draft must agree with the week ending date of the expense report. The draft is identical in amount with that shown on the expense report but in no instance may the draft exceed the maximum amount shown on the face of each draft.

Salesman signs in the presence of the party cashing draft. In no case shall draft be signed in advance of cashing. It is suggested that the drafts be cashed at a bank; however, many of them are cashed in other establishments. The expense report is submitted to the respective district office, and promptly forwarded to the general office. In the meantime, the corresponding draft that was cashed is on its way to the clearing bank.

Handling of exceptions. If the actual expenses exceed the maximum draft amount, the draft is prepared for the maximum draft amount and the "difference due" is shown on the expense report. The salesman will later receive a correc-



INTER-OFFICE CORRESPONDENCE

TO John Doe — DATE

LOCATION

SUBJECT YOUR EXPENSE REPORT WEEK ENDING 1/11/58

REFERENCE YOUR MEMO OF — FROM — FREMONT OFFICE

☒ Error in mathematics

Item Postage — You listed $ 3.00 — Correct listing $ 4.50

We owe you $ 1.50. Please add this amount to your next Expense Report.

You owe us $ _____. Please deduct this amount from your next Expense Report.

☐ Your expenses are over the Sight Draft Amount.

☐ Disallowed Item _____.

ATTACH THIS NOTICE TO THE EXPENSE REPORT ON WHICH CORRECTION IS MADE.

Correction Notice Form

EXHIBIT 3

tion notice form (see Exhibit 3) from the general office, requesting him to add the difference due on his next expense report, by listing it in the space provided. The draft for that week will then include the excess not paid to the salesman on the previous week.

Expense drafts are not prepared if the weekly expenses are $1.00 or less; instead, the expense is added to the next week's expense draft in the same manner as for expenses exceeding the maximum draft amount. The draft is voided and attached to the corresponding expense report and mailed to the district office. If no expenses at all are incurred, a blank expense report must still be prepared and submitted with the voided draft to the general office.

Spoiled drafts are not replaced. The draft is voided, attached to the expense report, and payment is then made by check from the general office. If a book is lost, the district office wires the general office immediately, so that the general office can take appropriate action to have the expense drafts cancelled. The salesman is not permitted to make corrections to an expense report (once the draft has been released) until a correction notice is received from the general office. In case of terminations, the district office is responsible for securing the salesman's draft book and making sure that all expense draft numbers are accounted for, by actual verification of the remaining drafts in the draft book. The salesman's final salary check is not released until all drafts are accounted for.

Expense Report Handling by General Office

The expense items on the expense reports are checked in the normal manner, except that the expenses can now be more carefully reviewed since the salesman has already reimbursed himself for his expenses. In addition, the expense report is checked to make sure the book number, draft number and other expense corrections have been properly recorded. Expense reports are then forwarded to the tabulating department for processing.

When needed, a correction notice form is prepared and sent to salesman. However, if the difference due the salesman is in excess of $10, a check for the difference is mailed immediately to the salesman. Experience has shown that a large difference due cannot always be covered on the next week's expense draft and has to be continually carried forward. The correction notice form is not used for minor adjustments. These differences are charged to a variance account and recorded as a debit or credit on the expense report.

When the expense reports are received in the tabulating department, various information on the expense report is key-punched for preparation of the account distribution summary, on a monthly basis, and other car and expense statistics. As a by-product from the account summary cards, tabulating department reproduces a deck of reconciliation cards containing: book number, draft number, week ending date of draft and draft amount, which information is later used for reconciliation of expense drafts when received from the bank.

Handling of Expense Drafts by General Office

Each day the clearing bank where the drafts are received informs the general office of the total amount of the drafts on hand. A check is written to cover the total amount of the drafts to be redeemed from the clearing bank. The redeemed drafts are picked up and forwarded to the tabulating department, which key-punches the draft amount directly into the draft; the book number, draft number and week ending date were pre-punched into the drafts before they were released to the salesman. Monthly, the tabulating department matches the sight drafts with the reconciliation cards. Cards are matched into the following general categories: (1) cleared items, (2) errors, (3) outstanding drafts and (4) outstanding expense reports. All expense cards, except those that were cleared, are interpreted.

The following detailed listings are furnished to the check reconciliation section:

1. Outstanding drafts.
2. Outstanding expense reports.

3. Debit and credit corrections, open at month end.
4. Direct payments (payments made to salesmen by check, when expenses exceeded the maximum draft amounts).

These listings, along with the expense cards for drafts with errors (unmatched amounts) and the cleared drafts in book number order, are sent to the check reconciliation section. All transactions are then cleared through the respective entries posted to the expense order clearing account, and a monthly reconciliation prepared, showing the balance in the expense order clearing account.

Reimbursement of District Office Petty Cash Fund

District sales managers use the same expense draft forms to reimburse their petty cash fund promptly when needed. The total from the cash disbursement record, maintained by the district office, is posted to the district managers weekly expense report, using one of the blank lines in the general expense section. The expense report is then completed in the usual manner.

The expense draft is prepared for the total of the expense report, including the total of the traveling expenses and the petty cash disbursement. The draft is cashed and the petty cash fund reimbursed for the proper amount. The expense report is sent to the general office with the cash disbursement record and supporting receipts attached, where it is audited and the expenses distributed onto the face of the expense report, which is then forwarded to the tabulating department for key-punching in the usual manner.

How Some of the Problems Were Solved

As with every new system installation, it is frequently difficult to foresee the various problems that might be encountered. Only experience will show which portions of the system can be improved upon. Listed below are some of the problems that arose, and how they were solved.

Standardization of allowable draft amounts. Originally, several different maximum allowable amounts were used, namely $50, $75 and $100. The maximum amount given to each salesman depended upon the range of his actual expenses. However, experience proved that this did not allow sufficient margin to cover fluctuations in the expenses. As a result, many checks were issued from the general office and many more correction notice forms were prepared in order to reimburse the salesmen for the balance by which their expenses exceeded the draft limit. This, of course, threatened the very basis of the system, since, when it becomes necessary to issue many additional expense checks, its effectiveness is

considerably weakened. Therefore, the allowable limit was raised in all cases to $100. Very few checks are now issued from the general office, thus saving considerable time and effort in the processing of exceptions and also reducing the preparation cost of the expense drafts.

Minor expense adjustments. When the expense report total differed from the expense draft total, a correction notice form was mailed to the salesman to correct his next week's expense report accordingly. This became quite a complicate procedure, because many minor errors occurred in recapping the various expense items, for which a correction notice form had to be prepared. Since the cost of handling an adjustment often exceeded the amount of the correction, it was decided that no adjustments would be made for differences of 50¢ or less.

Mechanization. At first, each salesman was supplied with a booklet of paper checks, the same in design as the tabulating card drafts except that they were made of paper stock and did not have the book and draft numbers preprinted or prepunched, so the salesman had to record this information on each draft. Sometimes he recorded the wrong information or none at all. Since all sorting and reconciliation of drafts and reports were being handled manually, many errors were made and much double checking was required. When processing thousands of these per month, the processing errors, plus many other adjustments to the expense reports, made it difficult to reconcile the differences in the account. Therefore, the expense drafts were converted to tabulating cards and the book number, draft number and week ending date were prepunched and preprinted in the cards. Since the expense items on the expense reports were already in punched card form, it was a relatively simple matter to handle most of the reconciliation by tabulating equipment rather than manually. As a result, the reconciliation cost was drastically reduced since human errors were held to a minimum and all sorting and matching could be handled quickly and accurately by tabulating equipment. Any differences could now be easily tracked down. In addition, it was discovered that the cost of tabulating expense drafts was only one-third of the cost of paper drafts.

New salesmen. Originally, newly employed salesmen were not supplied with expense drafts before they had completed a three-month probation period. In the meanwhile, they would be paid for their expenses by check from the general office. Expense drafts are now issued to salesmen immediately upon hire. Salesmen hired during the year are given only the supply needed to cover the rest of the year.

Advantages Derived from the New System

The primary reason for converting to the new system was to find a faster way of paying the salesman for his expenses. Cost reductions and other improvements were to be considered but they were not the deciding factor in the overall determination. However, in reviewing the system, after having gained more than four years experience, it was revealed that a number of various advantages had been derived from its installation.

Prompt reimbursement. As soon as the salesman had completed his expense report for the week, he can immediately prepare and cash his draft. No longer must he wait to receive his expense check from the general office or re-schedule his trip in order to be at the place that he had requested his check to be forwarded to.

Reduced expense advances. Previously, each salesman was given an expense advance to cover his expenditures for a two-week period. Since the salesman can now reimburse himself immediately at the end of the week, there is no need of giving expense advance. All expense advances were therefore reduced by better than 50 percent, thus improving our working capital position.

Reduced operating costs. The present cost of operating the system is approximately 6¢ per draft, as compared to a cost of 18¢ per check for the check writing system used previously. The operations that remained the same for both systems were not included in the foregoing cost comparison, such as checking expense reports, coding of expense items, etc. Nor was the return on investment in advances to salesmen considered as part of the savings of 12¢ per draft. A portion of this saving was, however, contributed by other improvements not directly related to the expense draft system. However, it is interesting to note that the tabulating card draft, even when considering the pre-punching of data in the card, is considerably cheaper than the two-part check form. Also, the reconciliation of the expense drafts, with all of its ramifications, is only slightly higher in cost than the conventional reconciliation of checks.

Salesmen's cooperation. The salesmen are extremely pleased with the expense drafts, and there would undoubtedly be much opposition if it were suggested to the salesmen that they revert to the old system. Moreover, there has been no obvious intentional misuse of the drafts. On several occasions draft books were lost or stolen but no trouble was encountered because of this. Considering the large volume of transactions handled each year, it appears that this is proof in itself that a company-administered draft system can be and, in our case, is successful.

A Procedure for the Centralized Gathering and Processing of Labor Data

by ROBERT SLAGER

GATHERING AND PROCESSING labor data accurately and promptly is a difficult job which confronts almost every industrial accountant. This job, with all its inherent problems, has been considerably complicated in recent years by the trend toward incentive pay systems. Our company's experience with this area has resulted in a rather unique system which is the subject of this paper.

In the past decade we have used several systems to gather data. Prior to our adoption of an incentive pay system, the hourly employees made out their own job tickets, which were then checked out by the foremen and picked up and delivered to the tabulating department by the time clerks. We felt this system left much to be desired from the standpoint of accuracy. Also, performance reports under this system were normally received in the shop two to three days after the jobs were run.

When our factory adopted incentive standards, greater accuracy was essential. Therefore we placed time clerks in each department or, in some cases where the layout permitted, one clerk would serve more than one department. However, along with its advantages, several disadvantages soon became apparent, the most serious was that the workload of the clerk was very unevenly distributed. Some departments had as few as twenty productive workers, yet because they were located so far from the nearest department the clerk was unable to handle additional employees. Consequently, this clerk had only a 25-percent workload. Attempts to correct this with fill-in work proved unsuccessful. In other departments there were too many employees for one clerk to handle and too few for two clerks.

In an effort to overcome some of these disadvantages, we studied the possibility of using a system that utilized intercommunication equipment to transport labor data directly from the production floor to a central location in our main office. As a result of this study, we were sufficiently convinced of the merits of a centralized system to give it a trial. After deciding to install a central recording system our next immediate concern was equipping for the job.

ROBERT SLAGER, Muskegon Chapter, 1960, is Budget Supervisor for the Muskegon Plant of the Brunswick Corporation. He was graduated from the University of Michigan with a B.B.A. degree in Business Administration.

The Equipment and Layout Adopted

Our intercommunication equipment consists of seven master stations with capacities varying from 22 to 66 in shop stations each. The master stations are so wired that any call from the shop can be answered by any one of four masters. The design of the master stations allows optional use of a talk-listen foot switch

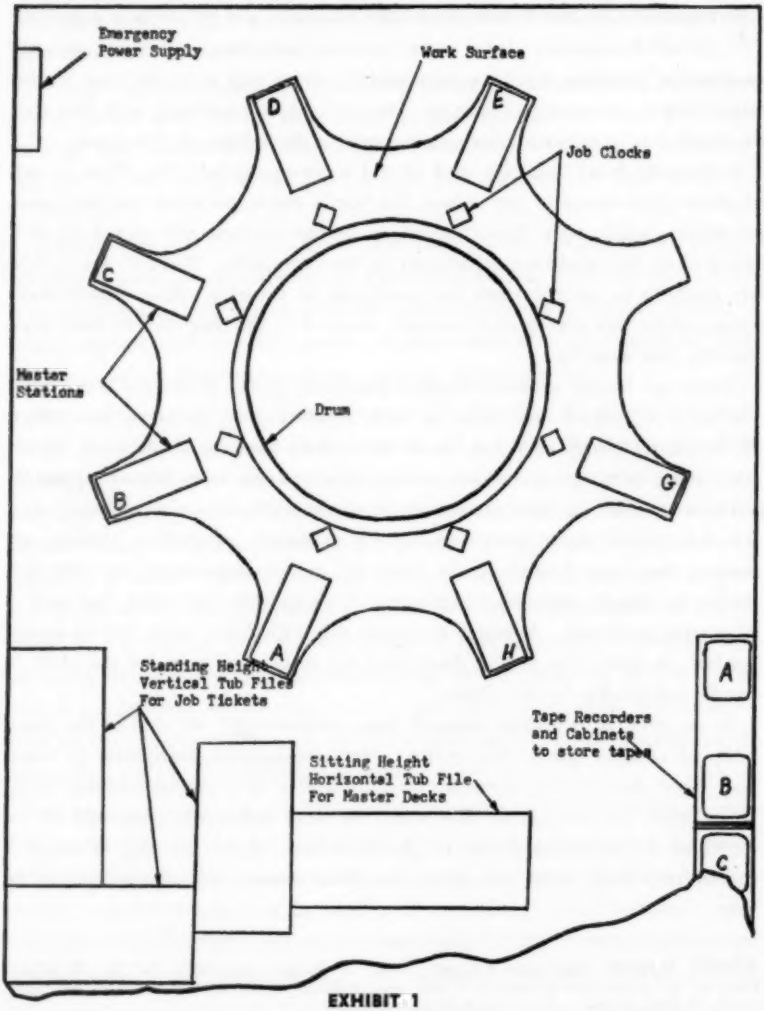


EXHIBIT 1

and headsets. Use of the foot switch leaves the clerk's hands free to enter the information on the job tickets. The headsets restrict the clerk's listening to the call that is coming in on her stations and also minimizes the conversation of other clerks going out over her station.

These master stations are located on a large eight position table (Exhibit 1). In the center of the table is a 60" diameter drum which is mounted on bearings so that it can be turned a full 360°. The drum is 29" high from the top of the table to the top of the drum and on the circumference racks are mounted that will hold job tickets for 1300 employees. Job tickets for all employees are available to each of the clerks by turning the drum. This is normally done only during rest periods, lunch periods or coffee breaks, when two or three clerks are handling all calls.

Each position, in addition to a master station, includes a job clock which has been recessed into the table top. The card platform of the job clock then is flush with table top so the job tickets can be slid along the table top directly into the clock for efficient punching. Each master station and job clock are assigned a code letter for identification purposes, which will be explained subsequently.

Call in stations are located as close to the production workers as possible to reduce walking time. Each station is housed in an acoustical box to prevent background noise from blotting out the conversation.

The tape recording of each call on remotely controlled tape recorders is an additional feature incorporated into our system that has since proved indispensable. Each master station has its own tape recorder which is activated when the clerk depresses a button to receive a call. A separate 1200′ tape is used to record all the calls taken by a master station during a shift. These tapes are identified by using the previously mentioned code letters for the master station and showing the date and shift on which it was recorded. The tapes are retained for two to three weeks and then re-used.

To protect us in case of a power failure, we have the two largest master stations (which can receive calls from any station in the shop) wired to emergency power supply units. These will allow us to receive calls for up to two hours while the main power is off.

This equipment is relatively trouble-free. It has been in use now about 14 months with only minor repairs needed. During this period the equipment was in use 24 hours a day, seven days a week for several months.

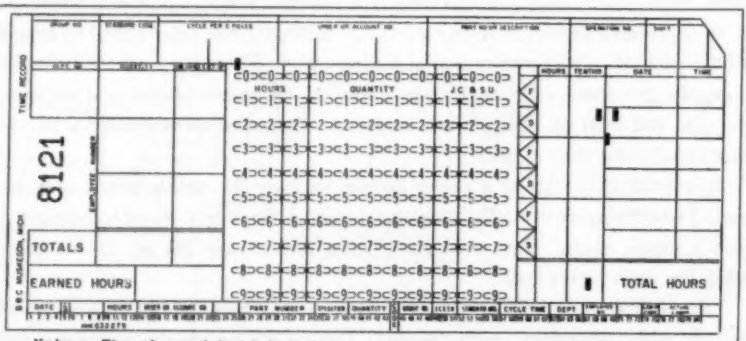
Gathering the Data

Our central recording staff consists of a supervisor, male auditors, one for

each two recording clerks, and female recording clerks. The auditors are responsible for auditing the various reports and making on-the-job audits of the workers, checking the job information they have called in and the number of good pieces they reported. The auditors also calculate the performance of special groups and generally advise the recording clerks when necessary. The function of the recording clerk is to enter the information on the job tickets (Exhibit 2) as called in. This is accomplished in the manner described below.

At the start of each shift the clerk inserts in the racks, on the portion of the drum adjacent to her station, packets of tickets for all employees assigned to her. These packets have been previously assembled by department and clock number from a roster. A packet typically consists of three manila direct labor job tickets and two red indirect labor tickets. The clerk is able to do this at the start of the shift since production employees have been instructed not to call in until they have completed their first job of the shift.

The mechanics of calling in are very simple. The production worker walks to the call-in station nearest him and merely depresses a button once. A small red light on top of his call-in station will go on and a light on each master station will go on opposite the button for that station. When the clerk accepts the call she depresses the button opposite the light and this causes the light on the master stations and the light on the call-in station in the shop to begin flashing indicating to the worker that he can begin talking. Upon depressing the button once the worker need not touch the call-in station again either during or after his call.



Note. The above job ticket form, printed in two different colors, is used for both direct and indirect labor reporting. For each employee job tickets are made up in advance by tabulating with the clock number gang-punched in it and end printed on the left side. They are filed in the vertical tub files by clock number until needed.

EXHIBIT 2

After accepting the call the clerk controls the conversation via a foot switch. This switch when depressed eliminates the conversation of the worker in favor of her conversation. This permits checking of data at the moment discrepancies occur rather than waiting for termination of the conversation by the worker.

A typical conversation between a worker and a clerk follows:

Worker: This is clock number 8121 department 125.
There is a slight pause while the clerk takes his job tickets from the rack.

Clerk: Go ahead please.

Worker: I have been working on PG—labor part number 87029 operation 139 B code.

Clerk: How many good pieces did you complete?

Worker: 275.

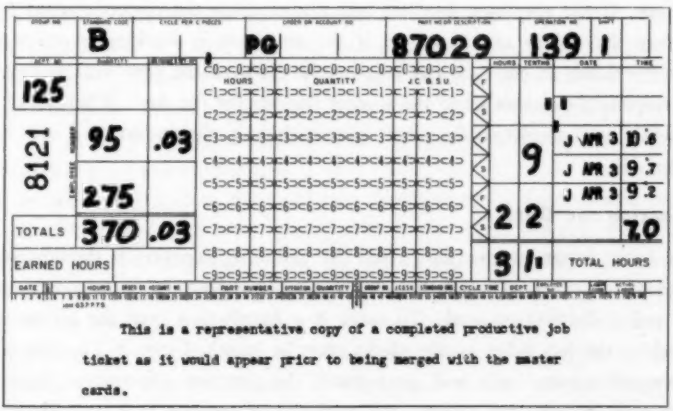
Clerk: What job are you going on now?

Worker: PG labor part number 87029 operation 140 B code.

Clerk (repeats the information for confirmation or correction by the worker): You have been on PG labor part number 87029, operation 139 B code and you completed 275 pieces. You are now going on PG labor part number 87029 operation 140 B code.

Worker: Yes.

Clerk: Thank you, the time is 9.2.
For an example of how this information is entered on a job ticket, see Exhibit 3.



This is a representative copy of a completed productive job ticket as it would appear prior to being merged with the master cards.

EXHIBIT 3

The average call can be completed in approximately 30 seconds. Each worker averages 2½ job changes a day which, with over 1200 employees reporting, results in about 3,200 calls per three-shift day.

The clerk, after recording a call, replaces the job ticket in the rack in front of the other tickets in the employee's slot. This has proved beneficial to the foremen of the larger departments because they can by calling in from the nearest station be informed by the clerks as to what job any of their workers is on. The clerk can also tell at a glance which employees are on indirect labor because of the red color of the indirect labor tickets. We feel that this has helped the foremen control indirect labor.

Around the middle of each shift, the clerks check their job tickets to determine if all employees have called in. If they discover an employee has not called in as yet they inform the auditor and he checks with the foreman to see whether the employee is absent. If he is not absent but has been working on the same job all the time this information is given to the clerk. When not receiving calls the clerks are calculating elapsed hours on the job tickets.

If a worker encounters a nonstandard condition on his job he informs his foreman and tells the clerk who then puts on that job ticket a tab indicating that it must be approved for an extra allowance by a standards engineer. The standards engineers check periodically with the central recording office to see that all tabbed cards have been taken care of.

At the end of the shift it is the responsibility of the clerk to see that the total elapsed hours from all job tickets for an employee equal eight hours, unless she has been informed that the employee has been late or is working overtime. If the employee was late, she can calculate the correct elapsed hours and turn the tickets in. However, if the employee is working overtime, she leaves his tickets in the rack and informs the clerk on the next shift so that she can complete the tickets when the worker finishes for the day. When all of her job tickets are completed, the clerk delivers them to the auditor and is finished for the day.

Processing the Data

The basic document emerging from the gathering function is the completed individual job ticket. The job ticket serves dual purpose, i.e., as a source document and a distribution card. To make it a distribution card the information entered on the job ticket by the clerks must be punched into it. To accomplish this we use master cards and gang-punch the constant information from the master card into the job tickets. All variable information is key-punched into the individual ticket.

The indirect master deck contains a master card for each budgeted indirect labor account in each department. Key-punched into these cards is the department number to be charged and the indirect labor account number. There are approximately 500 indirect master cards and they are in order by department number and account number.

The productive labor master deck contains a card for each productive operation at our plant. They have key-punched into them: the job order or schedule designation, part number, operation number, labor code, cycle (allowed hours per hundred pieces) and department to be charged. There are over 16,000 cards in this master deck, in order by part number and operation number.

The processing of job tickets begins by separating the indirect labor tickets from the productive job tickets. This is accomplished by pulling out all red tickets, which are then put in order by department number and indirect labor account number. An indirect labor master card is inserted in front of all job tickets for that department and account number. If there is no master card for the account number in the department, it indicates that the charge should be questioned. In this case the job ticket is placed with the "specials" to be reviewed by the auditor. Next, all special groups are pulled from the remaining productive job tickets and the performance is calculated by an auditor. These cards are then placed with the other "specials" for delivery to the tabulating department. The remaining productive job tickets are put in order by part number and operation number and merged with master cards. Again, if a master card cannot be found for a particular job ticket, it is turned over to an auditor to be processed as a "special".

Our work day begins with the third shift at 11:00 p.m. and ends at the close of the second shift at 11:00 p.m. the following day. The previously described merging job begins on the second shift and is always completed by 7:00 a.m. the next morning. All job tickets are delivered to the tabulating department by 7:00 a.m. in the morning, except for some specials which are cleared by first shift auditors prior to 8:00 a.m.

After being delivered to the tabulating department, the indirect and productive job tickets that have been merged with master cards are fed into a gang-punch machine which punches into the job tickets all necessary information from the master card. After being gang-punched the tickets are fed into a sorter which separates the master cards from the job tickets. The master cards are then returned to the central recording office where they are placed back in the master deck. The job tickets are then given to the key-punch operators where the variable information such as elapsed hours, quantity of pieces, and shift is key-punched into the job tickets. The specials have to be completely

EXHIBIT 4

Group Report

Date Shift	Dept.	Clock No.	Part No. & Actual Hrs.	Oper. No.	Group No.	Code	Quantity	Cycle	Job Change	Earned Hours	Actual Hours
03191	125	9399	87029	235	123	B		1.0700		.18	.20
03191	125	7449	87029	235	123	B		1.0700		5.80	6.30
03191	125	453	87029	235	123	B		1.0700		5.80	6.30
03191	125	2645	87029	235	123	B		1.0700		5.80	6.30
03191	125	2100	87029	235	123	B		1.0700		1.93	2.10
03191	125	570	87029	235	123	B	3803	1.0700	.06	5.80	6.30
03191	125	570	87029	235	123	B		1.0700		5.80	6.30
03191	125	2457	87029	235	123	B		1.0700		5.80	6.30
03191	125	7559	87029	235	123	B		1.0700		3.96	4.30
	92%	40.80	44.40							40.87	44.40*
03191	1031	5932	82350	30	132	B		372.1000		1.24	1.20
03191	1031	2517	82350	30	132	B	1	372.1000		1.24	1.20
03191	1031	6461	82350	30	132	B		372.1000		1.24	1.20
	103%	3.70	3.60							3.72	3.60*

key-punched and verified. However, they represent a very small portion of the total. The key-punching is completed by approximately 9:00 a.m. and the tickets are given to a tabulating operator who feeds them into the electronic calculator for calculation of group percentages and individual earned hours. The job tickets are then put in order and reports are printed.

Nature and Purpose of the Various Reports

In addition to providing basic payroll data, the prime purpose of the labor data gathering and processing function is to provide management with reports to aid them in the control of labor costs. Since the early availability of these reports is essential to effective management control, particular attention is given to delivery schedules.

The first report received from the tabulating department (approximately 10:00 a.m.) is the Group Report (Exhibit 4). This report lists each group in order by group number, the employees that worked in the group, the operations and part numbers worked on, pieces completed, group percentage, and earned and actual hours for each member of the group. This report is necessitated by the fact that some of our employees report as groups.

DAILY PERFORMANCE REPORT

DATE	SH	DEPARTMENT NUMBER	EMPLOYEE NUMBER	EMPLOYEE NAME	GROUP NUMBER	SH	NON-PRODUCTIVE CODE	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	NUMBER	% OF PERFORMANCE
04 11	1	125	534				04								
04 11	1	125	453				P								
04 11	1	125	519				P								
04 11	1	125	551				14								
04 11	1	125	558				04								
04 11	1	125	519			K							647	1041	135
04 11	1	125	5953			K							226	114	55
													923	1159	
							47.4						1417	1702	

EXHIBIT 5

The Daily Performance Report is the next to be received from the tabulating department (Exhibit 5). A separate page is used for each shift in each department. From this report the employees, foremen and superintendents can determine the performance of any individual employee or group of employees for the previous work day. It also shows the foremen and superintendents indirect labor by employee and totals of the various types of labor.

Five copies of the report are run. The original is retained by the central recording office and the other four copies are addressed and sent to the standards

department, superintendents, foremen, while one copy is posted within the department for the employees. These reports are received in the shop between 11:00 a.m. and 12:00 noon of the day following the day on which the work was performed.

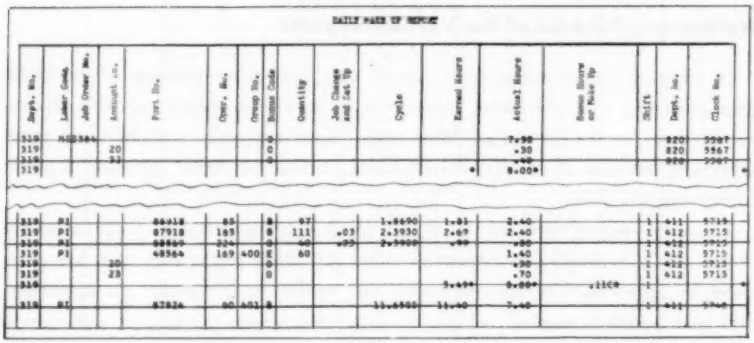


EXHIBIT 6

The Daily Make Up Report (Exhibit 6) is received from the tabulating department just before noon. Run in clock number sequence, this report lists each job worked on the previous day. Two copies of the report are run. The original is retained in the central recording office and the copy is delivered to the standards department for reference. The report is used by the auditor to check for unusually high or low performance or any other discrepancies that can be noted. Frequently, when checking this report, the auditor must refer back to the tape recording for verification or correction of information. Searching a tape for a specific call is relatively simple. The clerk announces the time at the end of each call which is recorded on the tape and this agrees with time punched on the job ticket. The station the call was recorded on is determined from the code letter punched by the job clock. All corrections are made right on the report and, when completed, it is returned to the tabulating department where corrections are applied to the job tickets. When all job ticket corrections have been made, the report is returned to the central recording office where it is bound with the group report and retained for reference.

The Weekly Departmental and Employee Performance Report (Exhibit 7), run on Tuesdays, summarizes by employee and department all work performed the previous week. Copies of this report are sent to the standards department, general superintendent, division superintendents and foremen. The standards

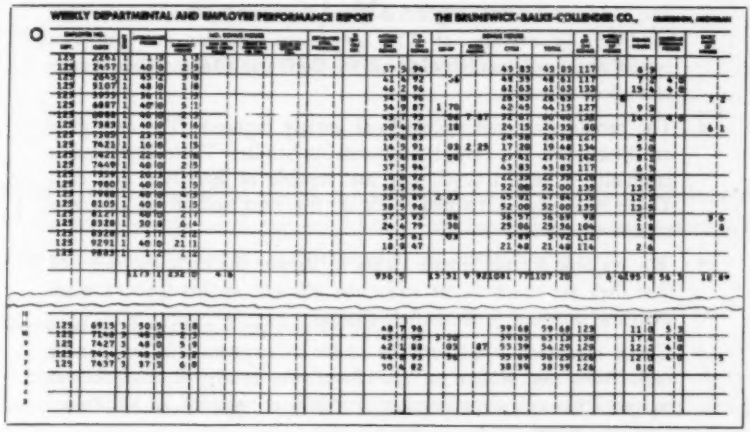


EXHIBIT 7

engineers use it to check on bonus coverage in their areas. Foremen and superintendents use it to check departmental and employee performance and also for indirect labor charged.

Advantages

Any complete change of systems must justify itself, particularly where capital expenditures are required. Our justification for changing to a centralized labor data gathering system has been through reduced costs and through the elimination of some of the more serious problems which confronted us previously. Our estimated annual savings amounts to $18,000.00, which in itself could justify the change. However, we feel that the advantages enumerated below are of equal importance from the standpoint of justification:

1. The number of clerks necessary to handle limited third shift operations or Saturday work is greatly reduced. Under our previous system, if there were one hundred employees working on Saturday in four different departments, we would have had to bring in four clerks at overtime rates. With our present system only one clerk is required.
2. Tape recordings are made of each call which can be used to verify counts or find information that was omitted or incorrectly entered on the job tickets. It also acts as a deterrent to giving false counts since the employee knows that his conversation is being recorded.

3. The workload of the clerks is evenly distributed with each clerk handling an average of 115 employees. Under our previous system the maximum handled by one clerk was 104 and the average was about 65.
4. The problem of training clerks is greatly reduced. The new girls are first given the easy departments to handle. Their workload is gradually increased until they are capable of handling any call. There is always a trained clerk at the next station to give the trainee assistance.
5. We are able to use female clerks to answer the calls and we feel that they are much faster and more efficient at this type of work than the previous in-shop male clerks.
6. Clerks are much more versatile under this system and can handle calls from any section of the shop. Previously, if a clerk was moved from one department to another, it required an additional training period.
7. Having a clerk absent does not create the critical problem, as it did under previous systems. When a clerk is absent now, the other clerks absorb her work. While it is true that the clerks handle on the average 115 employees, they have for periods of a day or two handled as many as 150 employees each.
8. We are able to deliver daily performance reports to the shop up to four hours earlier than before.
9. Having the workers report in by means of intercommunications removes the personal aspect of reporting, and waste of time by talking with the clerks is reduced.

In conclusion, the test of any system is whether or not it achieves the goals established for it. We feel our system has. After fourteen months of operation, we are well satisfied with the results obtained and would recommend it for consideration to companies experiencing problems similar to ours.

Financial Management—
The Accountant's Stepping Stone

by H. M. STILLER

THIS ARTICLE cannot be classed as a learned paper; it is rather a collection of rambling thoughts and even prejudices on a subject which, though beaten to a pulp by others, still merits consideration by all accountants.

General or Specific Responsibility?

Financial management is usually referred to as the administration of capital investments or accounting functions or budgets or electronic data processing, i.e., one among the various functions of a business, performed by an organizational unit within the corporate structure headed by the chief financial officer. But, in fact, financial management is more than that; it is general management; it is top management. The executive head of a corporate enterprise is usually the real chief financial officer, not the treasurer or controller or financial vice-president.

It is true that not all corporation presidents and board chairmen are accountants. Frequently, promotions to these positions are made from the marketing or production ranks with the idea, no doubt, that successes in selling or in manufacturing efficiency are necessary, and sufficient, qualifications. It is the American way to reward dramatic achievement of an operations official with the position at the top of the management totem pole. This is not necessarily wrong, nor is it necessarily right. Often such officials turn out to be at least adequate head men, although, of course, there is no way of knowing whether the treasurer or controller or chief accountant would not have been a better top executive. However, it appears reasonable to believe that the accounting-trained financial executive is at least as worthy a candidate as the others. It is true that he does not beat his own drum and pound on the table at board meetings. He cannot preen his feathers and take credit for increasing volume or a dramatic advertising campaign. He has no occasion to point with pride to the fact that it was he who motivated his plant personnel to a higher rate of productivity. The financial executive and his staff merely showed the rest of management what needed to

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be done, possibly suggested avenues of activity and provided the pertinent economic data which led to the decision making. These decisions were made by either the chief executive or by the marketing or production officials with the approval of the big chief. However, the essence of the decisions or their approvals was financial. If the financial officer had been worth his salt, it appears likely that he could have made or approved the decisions more surely, more speedily, more clearly, than any of the other executives. Why?

The financial executive is a specialist in the general approach. He should and usually does know the whole business—purchasing, manufacturing, marketing, administration—in terms of what has been done, what can be done and what should be done. He is the outstanding generalist in management and, if he has the proper qualities of leadership and personality to add to a basis of thorough knowledge and sound judgment, he is a logical candidate for the top executive job of the organization. And what is management? Some pundits tell us that management is art of motivating the right people to take the right action at the right time. This is a cute oversimplification merely of management's objective in human relations. Actually, the management function can be defined best as the responsibility for running a business. Responsibility means stewardship. It can also mean blame. Running means operating, which involves planning, performing, measuring and controlling. If management, then, means the responsibility or stewardship for planning, performing, measuring and controlling business operations, what does financial management mean? Should not it be almost identical in responsibility with the one just given, slightly modified as to its approach—financial management is responsible for planning, measuring and controlling the performance of business operations.

Accountant — Assisting Bystander or Decision-Making Participant?

What of the accountant as financial manager? In the first place, we should consider only the management or managerial accountant. Secondly, let us consider the peculiar field in which he operates, known, somewhat euphemistically perhaps, as management accounting.

According to most definitions and quasi-authoritative pronouncements, the management accountant is expected to *assist* management in decision making. This image of the management accountant is most unfortunate—and most prevalent. He is an overhead underdog sort of fellow, almost always "assisting". He knows, or should know, all about fixed, flexible and capital budgets, standard and direct costing, differential and marginal analysis, responsibility accounting and electronic data processing. He must understand and coordinate with account-

ing and economic data the results of applied mathematics to electronic equipment, such as operations research and linear programming. He is supposed to calculate return on investment, analyze make-or-buy situations, plan the optimization of product mix and schedule the most efficient utilization of assets. He can do all these things and more—but he rarely becomes president.

The management accountant is too often the victim of the bookkeeper tradition. He is still visualized by some as a colorless, taciturn individual, embittered by long hours of scratching in his barren books and ledgers. Even the more enlightened writers on business organization and management and, of course, many individuals in top management also, seem intent on relegating the accountant to a role of financial footman or valet. They continue to emphasize the necessity for the accountant to "assist" management; in other words, to do the dog work or leg work and then stand aside and let a real operator take over.

To a considerable degree, however, the accountants themselves are to blame for this low estimate. Too many financial and accounting executives seem to be content with subservient roles. They seem to be content to mind only what they conceive to be their own business—that is, routine administration and preoccupation with routine reports and with routine in general. They appear afraid to challenge other executives on broad issues, perhaps for fear they might be told to slink back to their cages and keep the books.

This is not to say that there are not many exceptions to this condition. There are numerous instances of the accounting-trained financial executive becoming president of his organization. There are also many situations where the financial vice-president or the treasurer is the real power in his company. And far more numerous than the foregoing are the cases where, in a genuinely participative top management atmosphere, the financial officer complements the president or chairman and really does have an executive voice in the decisions. Admittedly, the trend over the past several decades has been in the direction of participative management, with a related balancing of influences in an economic effort. More and more, the financial executives are listened to with respect, particularly in the larger business organizations.

Where the Accountant Has Taken His Place

A review of the reports of two hundred and sixty corporations of varying sizes shows some interesting statistics on this subject. In ten instances, the top financial officer is the president himself with the collateral title of treasurer. Five corporations designate the top financial officer as executive vice-president and treasurer. One hundred and one other corporations accord vice-presidential

rank to the chief financial executive. One hundred and twelve corporations have treasurers or secretary-treasurers as the principal financial officer and thirty-two organizations designate the controller to carry out this function.

Although it is not possible to evaluate the responsibilities which accompany these titles, it is interesting to note the proportion of vice-presidential and higher ranks accorded to financial officials, approximately 4 percent of the total number. Of course, many of the world's largest corporations have been included in this survey and the very size of such organizations requires considerable depth of rank in all areas of management. A second ranking financial officer—usually a treasurer where his superior is a vice-president or a controller where the treasurer is superior—appears in 43 percent of the surveyed corporations. However, five companies accord vice-presidential rank to both the treasurer and the controller, thus highlighting an important relationship which can exist between these officials. In many of the larger organizations, the treasurer and controller are independent of one another, one being concerned with top financial planning and the other with accounting administration and control.

Possibly the most interesting fact is that almost 50 percent of the companies include the senior financial officers on their boards of directors. Although some of these placements may be mere political or honorary situations, it appears that an impressive number of the financial men have an important role in policy decisions as well as in executive capacities. Thirty of the individuals who are directors are also members of the executive committees of their companies. Perhaps these statistics indicate a possibility of change in the status of "financial management".

There are numerous other instances in which an accountant eventually managed to hurdle the final obstacle of being labeled a financial officer. These men successfully sold themselves, their records, their experience, their knowledge and training as accountants—and were able to accomplish these phenomena without having to buy up controlling interests in the securities of their corporations. Perhaps some enterprising author should gather together biographies of accountants who became chief executives in business. It might be an inspiration to the polite and cautious financial men who hover constantly in the twilight zone of management.

The Area of Planning Is Crucial

In the control and measurement areas, accounting is still dominant, notwithstanding encroachment by mathematicians and statisticians. Control and measurement are still achieved by such time-honored techniques as data processing and

recordkeeping, costing and budgeting. Newer technologies of management accounting relate to the structural concept of responsibility accounting and to variants of older techniques, such as direct costing and flexible budgeting. The control and measurement aspects of accounting vary, of course, with the size and complexity of an industry. The greater the size of an enterprise and/or the more complex its operations, the more important becomes the highly developed control and measurement function of management accounting. But this is routine.

It is primarily in the planning aspect of financial management that the management accountant may be reduced to an "assistant". But, if financial management has any drama at all to compare with marketing or production management, it is in the area of planning. Here is where the challenge centers. If it is true that the management accountant is dealing with economic rather than merely financial data and objectives, he does not often seem to be aware of it. It is this which accounts for his frequently pallid performance as a planner. By pallid, I mean colorless or wan—not stupid or errant.

And this is why, as a planner, the accountant is often considered by his management associates or supervisors to be myopic and unimaginative, a spear-carrier dressed in the traditional wet blanket whose principal delight is the harpooning of new ideas. The motto usually found on his shield is the immortal legend, "It can't be done." On the reverse side appears the phrase, "I told you so." Of course, being a "no" man does add to self-respect, even if it detracts from constructive usefulness. It would be much better if the accountant were a "no, but-" man, one who did not completely submerge his creative instincts to the analytical process.

It may be, of course, that a particular management accountant may be too insufficiently versed in economic principles to deal intelligently with their application. Perhaps he is unable to picture his organization's position in relation to its industry (here and abroad in the past, present and possible future), to population growth and movement and to changing technologies. Perhaps he does not understand the dynamics of supply and demand, the plotting of indifference curves, basic theories concerning prices, wages, cycles and competitive factors. Perhaps he does not believe that economics has anything to do with business, let alone planning. It is here that he must gain at least a foothold on economics. The economist has a tremendous advantage in some aspects of planning. The economist, using accounting-based data and mathematical procedures facilitated by high-speed computers, can plan and project and chart in all ranges, dazzling top management with his omniscience.

How to Get There

Perhaps the accountant needs a new precept, "In financial management, planning dominates all other functions." This precept or observation is not particularly earth-shaking, and may even be argued. However, if performance is the body and administration and control the arms and legs, planning is the head. Planning is the thinking, creating, building aspect of management. Without planning there is confusion or stagnation and eventual decay.

Management accountants should get up off their hands and knees or any other anatomical parts upon which they repose and recognize the opportunities for enhancing the significance of their functions. They should seek to participate more actively in the planning processes. They should proffer their help, demonstrate their skills and produce ideas. It takes some doing—drive, extra work and/or study, strange uses of brain power—but it will be worth it. There is no reason why accountants should not be dynamic, knowledgeable members of top management.

If the internal accountant lacks knowledge in any of the important economic areas which are peripheral to accounting, he would do well to strip off his mental blinders and remedy the situation. Education in business management should continue for the accountant in business just as it does for the accountant in public practice. Courses are available at universities or special schools, seminars are being held continually by various institutions or by organizations such as American Management Association and our own National Association of Accountants, all of which have as their objectives an understanding of economic world in which we live. Copious literature exists and grows apace for those who have the time, energy and interest to read and understand.

Thus the accountant can acquire or polish his knowledge and skills in such vital fields as economics, general business management, mathematics and statistics, marketing and personnel administration. He can even study to good advantage the history and development of the industry of which his company and its products are a part, and thus orient himself to its broad potentials and probabilities. In short, he can acquire a philosophy truly to live by. This knowledge, plus an appreciation of opportunities for its use, can mean achievement of the sort to which management accountants should aspire. Not only does the accountant have a part in financial management—if he is of any competence at all, he belongs at the top.

Retail System of Inventory Recording and Reporting

by EDWARD B. PERRY

MUCH HAS BEEN WRITTEN about finished goods inventory and its related problems; it is not the purpose of this article to shed new light on it but rather to attempt to convince those in other than retail stores such as jobbers, wholesalers and manufacturers who have a significant finished goods inventory, what an advantage can be gained by acceptance of the system presented here and its application to their problems.

Department stores and other retailers have been using it for many years but other industries have not, to my knowledge, made use of this method to any important degree. Why should they use it? Because it is simple, requires a relatively small amount of clerical work and provides management with an easily understood measuring stick. Finished goods inventories are important objects of control in the degree which can be measured by the working capital that is tied up and the amount of potential loss due to obsolescence. The factor of obsolescence, whether due to style changes or technological changes, is present in all finished merchandise although its importance varies tremendously with different industries.

We are manufacturers and jobbers of costume jewelry, selling our products directly to retail stores throughout the country. The manufacturing operation is carried on by a subsidiary company which sells only to our merchandising companies. Approximately 60 percent of the products sold by our company are manufactured by its subsidiary. The balance is purchased from outside sources. Imports represent a significant part of these outside sources.

Procedural Steps in Recording

A review of the mechanics involved is probably the best starting point. The physical inventory at the end of each fiscal period is extended at selling price as well as cost (Exhibit 1). Each purchase invoice is extended at selling price and total value of invoice at selling price arrived at for the month. Markdowns are kept religiously and each markdown slip (Exhibit 2) must be costed. This phase of the retail system requires constant policing and education of the merchants in charge. They must realize the consequence of

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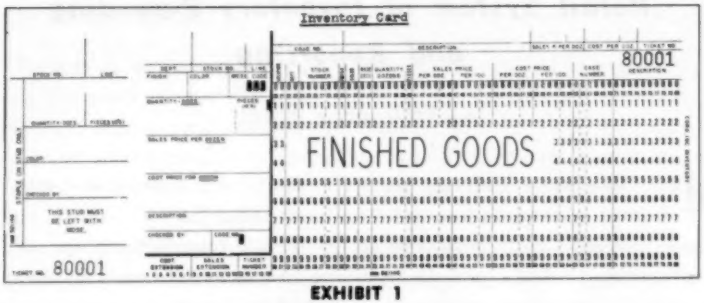

EXHIBIT 1

failure to record or to take markdowns. The failure to record adds to their shrinkage amount for the period; failure to take markdowns will slow the movement of merchandise and will tend to make the markdowns greater when finally taken. They should not be taken as goods are sold but as soon as judgment dictates a reduction in selling price to move the merchandise. Markups (Exhibit 3) should also be recorded and, of course, no costing of these slips is necessary. Transfers among departments or categories should be costed. If these are to be transferred at a lower selling, they should be marked down in the original department before the transfer is made.

The clerical work involved in the system is complete at this point. The method of completing this clerical work will, of course, vary with the complexity of the inventory problem and the number of transactions involved. In our company, we use punch cards for this function.

Exhibit 4 shows the consolidation of this information. It is applied to each category; the categories spread across the sheet and total in order to indicate

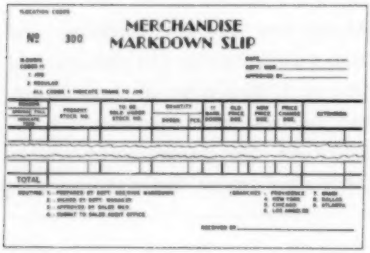

EXHIBIT 2

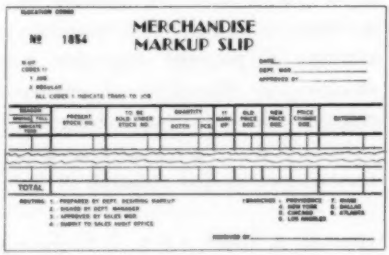

EXHIBIT 3

	Cost	Selling	%
Opening inventory (physical)	$ 500,000	$ 850,000	58.82
Add: Purchases (active)	300,000	495,000	60.61
Total	800,000	1,345,000	
Deduct: Markdowns	35,000	59,500	58.82
Transfers	4,000	7,000	57.69
Total	761,000	1,278,500	59.52
Deduct: Sales	221,000	372,000	59.52
Provision for shrinkage	4,500	7,500	59.52
Closing inventory	$ 535,500	$ 899,000	59.52
To date sales raised to annual rate		5,200,000	
Average monthly inventory for period		920,000	
Times turn		5.65	

EXHIBIT 4

the total action of the inventory. Selection of categories to be used in this report is a most important key to the success of the system. To know the exact facts of each segment of the business and their relative profitability can be extremely enlightening to management.

Method of Reporting

A method which I believe to be effective is to present the results on a comparative basis, showing three years' experience for the month and the period to date. This of course can only be done after the system has been in effect long enough to supply the historical data necessary. We have also found that to prepare a plan in advance of a season month-by-month and then to compare results to the plan has the effect of urging greater control with each disappointment when results fall short of the plan. These comparisons illustrate the trends of the business as a whole and the change in ratio between categories or departments of the business. If many categories or departments are involved, these reports can represent a tremendous amount of figures. However, all the data, except the actual figures for the period, may be prepared well in advance of the issuance of the reports.

The next requisite of these reports is punctuality and accuracy. It is necessary to consider the problems of the individual company before arriving at a scheduled date of issue. While the third working day following the end of the month may be considered a realistic goal, the earliest possible date, however, will be the most valuable from the point of corrective action.

We have referred previously to the measuring stick provided by this system. The first and only real measuring stick of any venture is percent of return on invested capital. In applying this principle we consider our inventory as invested capital and our gross profit as the return on invested capital.

Assuming a 40 percent markup on sales, what benefits would be obtained from a one percent increase in markup

with a five-times turn of inventories—

Sales for period	$1,000,000
1% increase in markup	10,000
Inventory at selling	200,000
Inventory at cost	120,000
Increase in markup increases return on investment by	8⅓%

Using the same example but substituting a reduction of one percent in mark-downs in place of the one percent increase in markup, the result would be the same—8⅓% increase in return on invested capital.

Again assuming a 60 percent cost of sales, what effect has an increase in turnover from 5.0 times to 5.1 times—

Sales	$1,000,000
Gross profit	400,000
5-times turn average inventory at selling	200,000
Average inventory at cost	120,000
Return on investment	333.33%
5.1 times turn average inventory at selling	196,000
Average inventory at cost	117,600
Return on investment	340.14%
Increase in return	6.81%

The above is an easily understood illustration of the application of the yardstick. It also makes possible the visualization of the interrelation of revelant factors and the need to know the results of action or lack of action in any of these fields and its effect on the other factors. Of course, in applying these measuring sticks from year to year and from category to category, weaknesses that might pass unobserved stick out demanding corrective action.

These reports must not only be sent out punctually on a given day of the month but they must be accompanied by an interpretative letter, which briefly covers all points of interest in terms of percent of return on inventory investment. It must keep management not only informed but infuse them with the determination to take corrective action where needed, supplying factual information accompanied by the best interpretative comments.

Simple and Useful

In conclusion, I want to review the accomplishments that the proper application of this system produces:

1. A simple method, with little clerical effort, of obtaining relatively accurate interim inventories.
2. A factual, easily understood report on the merchandising transactions of the periods under review and their results.
3. A comparison of profitability trends from year to year.
4. A comparison of the profits among departments or categories.
5. A clear and concise picture to management of where corrective action is needed.

Finally, to us accountants it offers the opportunity to use our ingenuity to its limits in pointing up to management on a punctual and consistent basis the effect that each transaction in the merchandising operation has on the profit picture of the business.

Brewery Inventory Control with Electronic Data Processing

by JAY W. BELL

IN OUR MODERN BUSINESS SYSTEM, inventory control is a major essential in profit planning and control. If we were to summarize our needs for proper inventory control, we might find the following pre-requisites for our quantity record keeping:

1. Record of the verified inventory at the beginning of the period.
2. Record of receipts with proper control, as to accuracy, verified through means outside the inventory records.
3. Record of disposition or usage, against a standard, with some estimation of wastage, or an accurate count of it.
4. The ability to calculate on inventory balance at the end of the period, subject to physical count.
5. Timely presentation of information, governed by internal check for accuracy and providing the necessary audit trail for proper external verification.

To trace the development of the book inventory, we look back to the original well-known form which was laboriously posted and balanced. Many innovations were introduced, such as the post-index, kardex and robot files which tended to aid in reference and ease of filing and handling. Next came the introduction of bookkeeping machines to aid in the posting and balancing and, as early as the 1920's, punch card or unit record equipment. All of these served their purpose well, but the rising spectre of costs began to enter the picture. Prior to the end of World War II, the theories of electronics began to be applied to engineering and navigational mathematics, with speed of calculation as their main objective. In addition a means of information storage for constant data became necessary. This led to the development of magnetic tape, followed by the magnetic drum and disc.

Here seemed to be the elements needed to help solve our inventory problems. At first the economics of acquiring and justifying such installations for accounting use did not seem feasible. However, the basis was there and needed only the manufacturer's ingenuity to produce a more economical machine. Basically, we needed a means of input of raw data, a means of storage of instructions, capacity

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to store constant data, a means of calculation, a file of results with summary ability and, of course, output in the form of a translated report or summary.

Many considerations must be taken into account in selecting the proper hardware. Our approach was to consider the inventory application along with all others, rather than select a machine only for this purpose. We were fortunate in having an established punch card system covering our sales audit, payroll, general ledger and statistical programs. Therefore, our first major decision was to eliminate the costly tape input type of machine, since much of our input media was already in the form of punched cards as by-products of existing programs.

Electronic calculators of the medium-price range were found to be extremely limited in their instruction storage capacity. This, together with the fact that storage of constant as well as up-dated information would be most valuable if readily accessible when on file, led us to select the IBM RAMAC 305. This piece of hardware gave us random access files, expanded program storage and adaptability to our other programs. However, I am sure other manufacturers' equipment could be programmed to cover the inventory control as outlined here.

Application to Full (Finished) Goods

Our inventories of greatest volume divide themselves into two major categories —finished or full goods and packaging materials.

Turning first to finished goods, it was necessary for us to determine what we wanted from this program. After careful study we listed the following:

1. The necessary requisites of inventory control as outlined above.
2. A summary of production, by products and by the lines on which they were produced, on a daily basis and with a monthly summary.
3. The ability to summarize transactions by size only, for purposes of compliance with the Federal Alcohol Tax reporting requirements and to properly determine tax liability.
4. The ability to provide daily and monthly summaries of the disposition of product other than by taxable sale, such as breakage and on-premise consumption.
5. Th ability to secure necessary information for daily and monthly summaries of usage of state (pre-paid) tax lids and crowns, and their shipment, for compliance with the various state taxing regulations.
6. A complete breakdown of all products, to be used in production planning.
7. A timely printed report for daily stock checks.

8. A means of ascertaining stock lows by exception.
9. A way of showing over-stocking (beer is perishable).
10. A means of quantity control to satisfy both state and federal government regulations.
11. A display indicating the location of the inventory as to truck, warehouse and return from market.

With these objectives in mind, we turned to the available source material for input data. We found that we were in possession of much of the data we need for disposition as well as for truck inventories, all as by-products of our sales audit operation.

We follow the practice of loading our trucks each night for the following day's sales. Our drivers are salesmen as well as delivery men and do not deliver on pre-orders. At the time of the return of the truck at night, a warehouse man counts the remaining cases on the truck, as well as the empties returned, and posts this information to a platform ticket (Exhibit 1). Then, based on the driver's requirements, the truck is loaded, the amount of loading being determined as it is removed from the warehouse. This is posted to the same ticket. The truck, when loaded, is counted and verified against the sum of the above. Other transactions also occur on the truck while on the street and while at the platform, such as removal of slow-moving items, borrow and loan between

PLATFORM TICKET

NAME John Smith ROUTE NO. 6 TRUCK NO. V10 DATE 4/6/60 CHECKED IN BY JH

PACKAGE	FULLS IN	RETD. TO STOCK	FULLS LOAD	LOADING 1	2	3	4	5	6	7	8	9	10	TOTAL FULLS OUT	2ND TRIP	Borrow or Loan	Paid to Borrow
EXPORT	17	1	150											167	4	1	
F.T. CAN 6's																	
F.T. CAN 24's	50	—	170											V10		(7)	
1-WAY 6's																	
TOTALS	67	1	226											387			

1ST TRIP — EMPTIES RETURNED — 2ND TRIP

ROWS OF EMPTIES IN	1ST TRIP 12 OZ.	1ST TRIP 26 OZ.	1ST TRIP BOX 7 OZ.	1ST TRIP 10 OZ.	1ST TRIP PREM. 7 OZ.		2ND TRIP 12 OZ.	2ND TRIP 26 OZ.	2ND TRIP BOX 7 OZ.	2ND TRIP 10 OZ.	2ND TRIP PREM. 7 OZ.		SALES SHTG.
R													
S	180												
T													LOADING SHTG.
TOTALS	180												
SHELLS	✓												
BOTTLES	6												

EMPTIES CHECKER JP CHECKED OUT BY JM

EXHIBIT 1

trucks, or a second trip load during the day. All of these transactions are placed on the platform ticket.

The input to our sales audit program of these transactions is made by mark-sensed cards for each type of transaction on the platform ticket and is done by warehouse personnel. We are currently using color coding for each type of transaction. This is done to aid the personnel in identifying each type, such as loaded, returned, etc. Conversion of the marked sense cards is done with the aid of card-order conversion; then they are priced and extended. Through proper sorting and tabulating we are able to create the audit summary (Exhibit 2); from this report we secure summary punched cards with the following information:

1. Inventory by products on trucks at beginning of the day. (This was determined the previous day and kept in file.)
2. Quantity returned to stock.
3. Adjustments from prior day's sales.
4. Amount of second trip loading.
5. Amounts borrowed and loaned between drivers away from the warehouse.
6. Fulls in.
7. Sale by computation.
8. Amount loaded from warehouse.
9. Computed truck inventory for the following day.

For the sales audit program, this information is produced for each driver and translated into dollars which, in turn, can be checked against his manifest, together with the tickets and cash turned in to the cashier. However, for the inventory control, we are interested in quantities only; hence this information is secured from the audit summary run by machine-created cards.

In addition to our retail truck operations (as outlined above), we sell to wholesalers directly from our platform. Our invoices are headed and posted as to quantities by warehousing personnel and forwarded to the order department for pricing and extension. By means of key-punch translation, we create the necessary cards to record the quantities, showing information for state tax reporting, and further use the same source for posting to our accounts receivable records. As a by-product of proof and summary runs used in the distributor sales audit operation, we create mechanically the cards needed for input of dispositions of this nature.

All other sales transactions, such as house sales, are recorded through the same type of key punch and sales audit by product operation. All transfers to branches

EXHIBIT 2

AUDIT SUMMARY

Date Mo	Day	Y	Package Description	QUANTITIES: Fulls out today	Emp C/S & bot.	Ret'd to Stock	Adj.	2nd trip	Loose bottles	Borrow or Loan	Shells	Fulls in	Fulls Loaded	Sales	Fulls out next day	AMOUNT: Gross Sales	Deposit Empties
4	20	9	12 ret	15446		61	3	215				4327	7251	11337	11517	61,516.86	8,502.75
4	20	9	12 1W6	3092		23	4-					1559	1263	1529	2799	7,045.80	

EXHIBIT 3

Full Goods Inventory

Description		Full Goods Inventory: Op.bal.	Prod.	Sales	Adj.	Cl.bal.	Minimum: Min.bal.	Ratio	Short	Details: Rfm	Truck	Whse	Physical: Physical	Diff.	CD
		Materials Inventory: Op.bal.	Receipts	Returns	Usage	Waste	Cl.bal.	Minimum: Min.bal.	Ratio	Short	Details: Outside 4-20-60	Whse			
12 Ret	Reg.	9277	7602	6564	32	10283	9000	1.1			3180	7103			
	Va.	4790	3006	3451	9	4336	3500	1.2				4336			
12 LW6	Reg.	19919		5968	39	13912	14000	1.0	88	22	8581	5309			

originate similarly to the wholesalers' invoices and follow the same pattern into the system. Samples, drinkage, breakage, etc., are key-punched from appropriately approved tickets.

Production summaries were in use and needed only to be translated by means of key-punching. Our production scheduding people had predetermined minimum quantities; it was only necessary to formalize them. Here, however, we had to provide a great deal of flexibility because of the seasonal cycle which is very pronounced in our industry.

In this way, we corralled all the necessary factors of input for processing our finished goods industry. The programming of the hardware for this purpose is extremely technical and varies with the type of equipment used. It will not be treated here in machine language. The result of the basic processes may be illustrated by reference to the report form in Exhibit 3. It will be noted that we show:

1. The opening balance, printed from file.
2. The production for the day, updated on file for the month to date.
3. Sales, again updated for month to month to date, on file.
4. Adjustments.
5. Computed closing balance.

At this pont, we make use of the ability of the machine to make a comparison and decide what to do. The minimum balance on file is compared with the computed balance and a ratio developed. If the ratio is less than one, a computation is made of the quantity short; however, if the ratio is greater than one, no computation is made beyond the ratio itself. This then makes it possible for the recipient of the report to determine where he is low or short of minimum by merely looking at those items printed in the short column. Overstocking is determined from the ratio itself.

We now return in our processing to the quantity at the close of business, remove the return-from-market inventory and the truck inventory. These have been previously fed into file. The resulting inventory quantity should represent that which is in our warehouse. By means of determining intermediate levels of totaling, we show on the report totals for each major package and the sum of all within one size.

We have provided on the form for the warehouse to check and post the physical inventory, determine the variance and, by code, indicate its disposition. No adjustments originate from this source for sales. They come as a by-product of the completed sales audit. However, adjustments of production, mainly errors in transmission or other adjustments, are handled the following day. In this

manner, inventory variations are immediately investigated and disposed of, so that they do not lend confusion to the following day's stock check.

In this manner, we have completed all of our aims for this program, including the timeliness of its presentation. Our sales audit operation is completed during the night and, since this and its companion report on materials require only an hour for complete processing, we are able to present it on the morning following our taxable day, which ends at midnight.

Application to Materials

Again, after careful study, we outlined the benefits we wanted to derive from our materials inventory program:

1. The necessary objectives of inventory control, as outlined earlier.
2. A daily and monthly summary of items received.
3. Determination on a standard basis (24 cans to the case, etc.) of usage according to reported production.
4. Calculation of estimated wastage to determine book inventory balance.
5. Low-stock and over-stock items, with shortages flagged.
6. A means of display as to location, whether in our warehouse or outside (and hence not as readily available).
7. A procedure for identifying receipts of tax-paid lids and crowns, with appropriate release certificates.
8. Assistance in accounting for loose crowns and lids for state tax reporting.

Once more, we inquired into what we already had by way of input in card form or otherwise available. Our receipts of materials are not available and, therefore, must be key punched. However, the production has already been entered into the system for the full goods and resides on file. The historical waste can be loaded on file and computed. Minimum stock requirements can be keypunched and also stored on file. All transactions to and from outside warehouses can also be translated and entered. Thus we found that we did have all the information to process our materials inventory.

The developed report is displayed in Exhibit 4. Our opening inventory comes from file, having been determined on the previous day. Our receipts are stored on file, both for current day and month to date. From the recorded production in the full goods program, we explode the bill of materials and transfer usage of each item to file and compute the estimated wastage. From this we can then compute a new quantity balance and, by comparison, determine the ratio and

Materials Inventory

Description	Full Goods Inventory					Minimum		Details			Physical		
	Op. bal.	Prod.	Sales	Adj.	Cl. bal.	Min. bal.	Ratio	Short	Rtn	Truck	Whse	Physical	Diff.	CD
	Op. bal.	Receipts	Materials Returns	Inventory Usage	Waste	Cl. bal.	Min bal.	Minimum Ratio	Short	Details Outside 4-20-60	Whse			
Car 12FT6	56554	74500		10608	32	120414	50000	2.4			120414			
Lid 12 Reg.	91612			12959	63	78990	18000	4.3		59410	13580			
Lid 12 Va. Yo.	22681			4190	21	18270	30000	.6	11730		18270			

EXHIBIT 4

shortage. The outside storage quantity is up-dated and, when subtracted from the balance, gives us the necessary warehouse inventory. In this area of the inventory, we feel it is uneconomical to take a complete count daily and do so only on restricted items, such as state tax-paid crowns and lids with respect to which switches in production can be caught and proper adjustments made.

At the time when a full count is made, we provide the warehouse with the month-to-date figures on receipts, production and wastage. After count, the adjustments in quantity to correct wastage to actual are fed back and we can continue our processing till the end of the accounting period. This, then, makes it possible for us to take our inventory at other than month ends without the necessity of interpolating results. Due to physical limitations, we are not able to follow the usual stores requisition method of accounting for usage; we must rely on book versus physical counts to police wastage.

Far-Reaching Benefits

The advantages we have gained through the use of this method of processing lies in legibility, speed and inherent accuracy, together with the ability to interrogate at random for information not contained on our daily report, such as month-to-date figures, constant data, etc., at a minimum of time and cost. Personnel savings and timely reporting have been effected which had heretofore been impossible under other methods.

Thus we feel we have met the needs of inventory control in these two areas through electronic data processing, with a minimum of cost and with many by-products which tend to minimize paper work and provide proven controls which appear to satisfy all state and federal requirements, so important in our industry.

Our future plans call for using the information developed in these programs as a means of production scheduling and possible advancement of closing schedules.

Overtime or More Help?— A Check List of Factors to Consider

by JOHN T. O'MALLEY

"Is it more economical to increase the work force and drop overtime?" or "Which costs more?" or "Is there a point when additional help is more profitable than paying overtime premiums?"—These are questions which have been asked many times in recent years. Before answers can be attempted, some thought should be given to all these pertinent factors, each of which should be analyzed in the light of conditions in the respective company or industry. Those discussed here apply primarily to industrial manufacturing firms but if slightly modified, can readily apply to most businesses.

Some Preliminary Considerations

Let us first examine some broad aspects which are exceedingly difficult to measure in dollars and cents but which should weigh heavily in deciding what you would recommend for your own company.

Custom. Depending upon the geographical region and the size of the community, social and economic conditions and pressures may be so strong as to determine the length of the work week and when deciding whether to hire additional help or work overtime it is best to follow the pattern in your own community.

Legal regulations. The hours which females and minors may work are limited by state and federal regulations. Premium rates may be required after a certain number of hours in a day or a week. The restraints here, since they are set by law, have a very important bearing in answering the above questions.

Union contract. If you have a union, you well know that collective bargaining is permitted on the hours of employment. A review of your union contract will show you how much leeway you have in complying with restrictions, if any.

Skill. If your product is of such a nature that skilled labor is not too important a requisite, you need not give this point much consideration. However, if a long training period within your company is required or highly experienced

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men are needed for the work, this is a most significant factor to be reckoned with. In times of general high employment, it is usually so difficult to secure skilled help that the level of employment in your area may be the deciding factor in using overtime rather than more help.

Personal characteristics. The age, sex, behavior and habits of the labor supply available vary considerably and should be given ample thought before arriving at any conclusions.

Employee contentment. You must not only study the cost to the employer but also take into account what the changes in hours may do to the employee's income. There is bound to be considerable dissatisfaction if present overtime is dropped because more help is added. Since most employees live up to their income, and often beyond, and frequently make use of various credit arrangements, a sudden drop in the employee's earnings makes him most anxious to have his hourly rate increased so that he can earn the same pay on regular time. Oftentimes when additional help is hired in one department, thus reducing or eliminating the overtime, this creates harmful internal friction between that department and other department or departments still working at the overtime rates. The union frequently finds itself in a dilemma when different work periods are maintained in various departments. This can only lead to another bargaining issue when contracts are renewed with the union.

Advance planning. A major point, requiring careful study in judging what is best for you, is the ability to prepare adequate advance planning and scheduling of operations in the departments concerned. Without advance planning, overtime may solve the immediate problem. This is especially true when it is believed that this is only a short-run situation due to some production irregularity or to the acceptance of orders beyond the normal work force capacity to handle.

Since management has no crystal ball to predict how long some of these unusual conditions will last, it is frequently quite difficult to plan future operational requirements. In long established firms, there is often a historical pattern of peak periods, especially in seasonal lines. Here advance planning can readily eliminate overtime by the addition of more help recruited far enough in advance so as to be utilized during these peak periods. It becomes all the more perplexing when the company introduces a new product on the market with no past sales records available.

If your plant is unionized, and the scheduling of hours of employment are spelled out in the contract, you may be limited in your choice as to what would be best for your company. For the purpose of this discussion, we will assume that you can install a work schedule which you believe is best for your plant.

Overtime

Let us consider some aspects of overtime and review specific points the impact of which affects the choice between the alternatives.

Premium pay. Probably the greatest single cost is the premium rate required when the overtime hours are worked. The federal regulations require that you pay a 50 percent premium for all hours worked in excess of 40 in any one week. Legal and union contracts frequently spell out premium rates which must be paid for hours worked in excess of a certain amount, not only for each week, but also for each day and for special times such as week-ends, Sundays and holidays.

Output. When the hours are increased 20 percent, say from 40 to 48 hours a week, you do not necessarily get a 20 percent increase in productivity. More likely, you will get about 18 percent, according to available studies made to determine how the rate of output increase when hours are lengthened in the work week. Since you must pay at overtime rates for the equivalent of 12 hours at straight time rates in order to get about 7.2 hours more productivity, this means you have paid a premium of 67 percent to get this extra output, as illustrated by the following example (at straight hourly rate of $2.00):

Eight hours overtime @ $3	$24.00 paid
Output (90% of 8) 7.2 hours @ $2.00	14.40 earned
Premium pay	9.60 excess
$9.60 ÷ $14.40 = 67%	

Let us pursue productivity results a little more to find out what a further extension to the work week will accomplish. A number of tests have proved that efficiency drops very rapidly after 48 hours. You may get as little as 20 percent efficiency on the next five hours worked beyond 48. This gives a whopping premium of 400 percent for these hours at premium rates. When overtime becomes the accepted practice, it has been shown that the workers usually do not produce more in 60 hours than in 48 hours. Many reasons have been advanced for this drop in efficiency when the work week is extended. Obviously, fatigue is an important factor but the very nature of the work may determine the extent of the decrease in output. The intensity of the motivation of the worker will vary the rate of fatigue, and variety in the work performed will certainly lessen the monotonous nature of the job.

Sunday work. Most union contracts and some company policies require double pay for work on Sundays. This makes the premium just about prohibitive in view of the output but firms are sometimes obligated to operate on Sundays due to unusual circumstances. If Sunday labor is continued, it is a

most undesirable and costly work arrangement. The employee will be more apt to take time off and if he does, he usually picks straight-time days to be absent.

Higher earnings. As a temporary measure you can boost the employee's earnings which permits him to buy some luxuries he might not otherwise obtain, or pay off burdensome bills that may have accumulated due to sickness or injury to him or his family. Sometimes overtime is used as a method of sharing more with the employee when business is quite profitable. This gives the employee more take-home pay, and can be eliminated without reducing his hourly rate.

Expediency. In some companies, overtime can truthfully be attributed to managerial "expediency." When many problems are pressing for solutions, it may be a lot easier to quickly decide to use overtime work as a "temporary" measure rather than evaluate all of the considerations which we are discussing here.

A substitute for wage increase. Overtime is frequently used to compensate employees in a tight labor classification without upsetting the entire pay structure. The overtime here is continued until the demand for this type of personnel eases off. Then such employees can be returned to regularly scheduled hours without rate reclassification.

Slow-downs. When an employee becomes accustomed to overtime earnings, there may be a tendency on his part to stretch-out or "make work" when he notices that the production-load is diminishing. Under these circumstances, there are not only the overtime premium rates to contend with but also the additional costs due to lower output by the man.

Absenteeism and injuries. If overtime is in effect for a long period, it may increase absenteeism. The worker is more prone to injuries when he works long overtime hours.

Buildings and equipment. If space is a problem, it may be better to work some overtime rather than add additional help who will only be "in the way" of the present work force. If work-force expansion requires expensive machinery and you have neither the space to set it up in nor the money to pay for it, it would seem only logical to make use of overtime until these conditions are corrected.

Rest periods. Coffee or lunch breaks help reduce fatigue and are very common in industry today for workers on a normal work schedule. These take on all the more importance when overtime hours are involved, especially when the work day itself is increased considerably. Long hours worked in the same day hurt output in the same way that a long work week limits productivity. Frequent rest pauses help to offset these losses.

More Help

The expansion of the work force should not be undertaken until there are definite signs that production requirements will be maintained at a high level with some semblance of permanency.

Procurement. Keep in mind that hiring new workers costs money and takes much effort even if you have a full-time personnel department. Advertising, interviews, physical exams, testing, placement, training, low production, high spoilage and more supervision are the main causes of increased accession costs.

Multiple shifts. When you contemplate adding more help, it is important to know whether you can add the people to the present work force or must start a multiple shift operation. If you are working a single-shift operation and you plan to start a second or "swing" shift, you must not only figure the labor and overhead costs but you must also consider the quality of the workmanship and the supervision available for this second shift. Good supervisors are most reluctant to work on second or third shifts. Besides other-than-normal work hours, such supervisors are handicapped by the lack of experienced help. If seniority rules apply to shift choices, the old timers usually request the first shift. Public transportation for these workers is not as readily available as it is on the first shift. The cafeteria may be open only for first shift or medical services may be omitted on the second and third shifts, etc. Operations which take long periods of time to complete often carry over from one shift to another with some loss in efficiency. Multiple shifts also raise the question of liability for quality control between the shifts. Piece-work rates must be measured in order that the proper payment may be made to each shift worker when the job carries over from one shift to another. Furthermore, you need good plant housekeeping so that one shift does not leave a mess for the next shift. Multiple shift transitions are not smooth and effective unless you can maintain a cooperative spirit between the different shift workers and have good supervision on all shifts.

Shift differentials. To encourage the workers to accept second or third shifts, premium rates are usually paid averaging from 5 to 10 cents more on the second shift to 7 to 15 cents more on the third shift. Where piece-work rates are involved, there is usually a percentage added to the earnings approximately equal to the shift differentials paid to hourly-rated employees.

Rotation. Supervisors are sometimes rotated from shift to shift to insure better quality, both in output and supervision. It is a fact that setup work is often a problem when the experienced and skilled men are concentrated on the first shift, which leaves the second and third shifts to hobble along. Shift rota-

tions are frequently necessary, especially if a third shift is in effect. Employees cannot or do not want to be "stuck" on these unconventional work periods. If extra shifts are built up slowly over a long period of time it may be possible to recruit some workers who do not object or even prefer these unusual hours. However, when extra shifts are instituted rapidly and require some of the veteran personnel to transfer as a nucleus of experienced help, you must make provision for rotation. Probably a change every four to six weeks is best for their physical well-being.

Fringe Benefits

If you hire more help, the new employees are entitled to the same fringe benefits as the older hands, except those where the degree of value is determined by seniority (vacations, bonuses, separation pay, leave of absence, etc.) However, the cost of some of these benefits may be greater for the new help when compared to present employees on overtime. It is here that we will make some specific comparisons under certain assumptions, i.e., no union restrictions, no skilled help problems, adequate space and equipment available, etc.

The Federal Old-age and Survivors Insurance costs employers 3 percent on the first $4800 of earnings in 1960. The rates will progressively increase to 4.5 percent by 1969. Statistics on national average pays for industrial workers indicate that most workers exceed $4800 annually which means that there would be no tax on overtime wages which push earnings over this taxable amount.

The present limit of $3000 taxed by States and Federal government for *Unemployment Compensation* would exempt overtime pay which exceeded this amount. These rates vary among states and among employers but, according to an experienced factor based on charges to employers' accounts for benefits paid to unemployed workers, this tax runs from .05 percent for companies with low claims up to 4 percent for firms with heavy charges due to many layoffs. State legislatures have been upping payments for the unemployed and their dependents frequently, at the urging of unions and other "liberal" groups. Here is another point worthy of study if you maintain accurate records of the charges to your account for claims for unemployment benefits. In Massachusetts, the experience rate goes up in steps of .2% and is based on a mathematical computation arrived at by relating charges to amounts paid into the fund during a specific period ending a few months before. The new rate is established for use during the entire current year. A layoff of only one more employee may increase your contribution rate by .2% on your entire payroll (up to $3000 for each man) for a whole year. A substantial cost may be saddled to your opera-

tion which could have been avoided by retaining the employee to work in another department or as a "spare" to fill in on absenteeisms, etc. (Of course, the rate can also be increased, beyond your control, when the general fund is so low that a flat charge is made to all employers.)

Workmen's compensation premiums are also based on an experienced factor in most states. It is difficult to say how many more accidents are caused by fatigue from overtime than ignorance of safety precautions by new employees, but records show that the frequency rates for injuries tend to increase as the hours go up. Since your rate is set for the entire year based on past losses, this can be a heavy drain against income.

State Sickness Benefits Insurance apply in a few states and is usually limited to a certain amount of earnings, so overtime hours here may not add to the cost of this benefit. (Similar to reasons given on O.A.S.I. earlier.) Cost is relatively small, but this type of program is increasing in importance.

Pensions based on straight time earnings would cost the same in this comparison but would be less for overtime employees if the pensions are tied to a regular 40-hour week or a flat annual cost, regardless of hours worked. Costs vary according to plan, but 3 percent to 5 percent is normal.

Life insurance, death or dismemberment, sickness, accident, hospital and medical care insurance are usually fixed at the same rate for each man. This means 2 percent to 4 percent of the fringe cost can be eliminated from overtime whereas it is incurred with new help.

Miscellaneous benefits (safety equipment, company activities like outings, sports programs, etc., clothing allowance, free meals, tuition refund, stock purchases, discounts on goods purchased from company) are less for older hands on overtime since they are most often tied-in to a relatively stable cost based on number of employees rather than earnings or hours worked. These average .5 percent to 1.0 percent of regular earnings.

Supplements to unemployment compensation are figured at three cents to eight cents an hour usually on straight-time earnings including overtime hours but not premium rates. A fund is maintained which reqiures additional contributions when below a certain level. New help would tend to increase this cost when laid off.

Severance pay is being demanded more and more by unions fearing effects of automation. Naturally, new men would make a greater impact on this cost since they would usually be dropped first with less chance of transfer than the oldtimers. Cost is less than 1 percent but is a union issue which is bound to raise cost in future.

Holidays are usually set at a certain annual number and no extra cost is involved when working overtime, so you can save 2 percent to 4 percent over the cost for new help.

Vacation pay frequently is figured on past earnings including overtime wages, so comparatively there would be no saving. However, when vacations are determined by length of service in addition to earnings, then the older hands would raise this fringe benefit cost as compared to a new man with no seniority rights. But when vacations are for a fixed period of time based on a length of service, excluding overtime, there could be a decrease in cost from 2 percent to 4 percent.

Christmas or other special bonuses are similar to vacation pay—costs range from 1 to 3 percent.

Rest and lunch periods, washup, travel, clothes-change, get-ready time, etc. do not usually increase when overtime is utilized but carry an extra cost for each new man.

In general, fringe benefits now run from around thirty-five cents an hour to sixty-seven cents an hour in manufacturing firms so you must be fully aware of this when figuring the employment costs of a new man. However, some of these costs, as you can see from the above, continue for overtime hours but you can still save 15 percent—22 percent of payrolls by using overtime rather than more help. In the past ten years these extras have risen twice as fast as the wages rates and can be expected to continue.

Summary

After considering all of these factors and assumptions, we might conclude that:

1. When the expansion of your business activity can be expected to last at least six months, hire new help.
2. When overtime has been continuing for over six months, be extremely careful in deciding to expand the work force in order to reduce this overtime since employees will press for increased wages to offset the loss of income.
3. Longer hours with overtime premiums, reduced efficiency and shift differentials still cost more than the extra fringe benefits, training costs and lower output of the new man.
4. Advance planning is the key to what you should do. Expediency and exigency should be avoided whenever possible since quick decisions involving labor are frequently difficult to change.

Functional Costs and the Marketing of Life Insurance — A Sketch

by DAVID B. BRENNAN

THE INSURANCE INDUSTRY in the United States is one of the pioneers in the development of marketing concepts. However, the majority of the companies in the industry have failed to utilize an effective means to control the resulting costs. From the standpoint of the accountant in relation to management of life insurance companies, an effective and easily accessible means of control is available. The need is for a functional cost system, to which this article is devoted.

The view is often taken that life insurance marketing is different from marketing of other products. It is true that there are certain variations between life insurance and other forms of marketing. However, there are also many similarities and the principles of marketing apply as well to life insurance as to all other tangibles and intangibles. Marketing has been referred to as the creation of time, place and ownership "utility".[1] Life insurance marketing certainly meets this criteria. Insurance must be available for purchase at a time and place suitable to the buyer. Therefore, sales outlets must be established in cities and locations convenient for them. This requires sales and service representatives who must be available for the consumer's convenience. Ownership utility is present at the time when the purchase of an insurance contract is consummated. Life insurance is even said to have form utility, as do tangible products, when a type of insurance such as group life and accident and health is devised or when the contract is made to fit the needs and desires of the buyer.

Functional costs represent the expenditure required to achieve a specified purpose through a series of operations. Costs may include many various types, such as salaries, supplies, advertising and rent. The function is usually expressed in selected units and the cost relates to the accumulation of all the elements for a functional unit. The number of cost elements in a function depends on the organization, size and policy of the company involved.

The insurance service is represented by a contract between the insurer and

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[1] *Life Insurance Sales Management,* (Lectures in Insurance Topics, University of Pennsylvania, New York: The S. S. Huebner Foundation for Insurance Education, 1957), p. 4.

the insured for payment of a stated amount of money upon maturity of the contract, in consideration of lump sum or installment premium payments. Consequently, the industry as a whole relies solely on the paper-work processing of its organization. Relatively little accounting literature deals with functional costs as applied to paper-work processing. However, the basic principles of a functional cost system are adaptable to clerical operations, i.e., where the sole product is paper-work. Functional costs applicable to such operations can be related to the marketing of contracts between the insurer and the insured. This paper deals with evaluation of this relationship.

Mechanics and Methods of Functional Costing

Since functional cost systems is relatively in the development stage, each developee has been making his own rules. The rules are usually modified from company to company. However, there are certain basic principles common to a functional cost. A functional cost system is an intricate, detailed cost method through which definite functions for gross and unit costs are obtained. There are no uniform sets of functions, due to the variety of influencing factors effective in each company. A functional analysis that serves the specific needs for information of a particular company is necessary. Such functions of a sample life insurance company are presented as a foundation for functional determinations:

1. *Insurance, first year*—acquisition, selection, issue and collection.
2. *Insurance, renewal*—collection, changes, terminations and policy services.
3. *Insurance, general maintenance*—other expenses not directly allocated to first year or renewal.
4. *Investment*—expense of acquisition, collection, servicing and sales of investments and investment income, and other investment expenses of a general nature.
5. *Service*—various interdepartmental services, such as mail, supply, personnel, purchasing, pensions and other employee benefits.
6. *General overhead*—items of general nature which do not pertain specifically to either insurance or investment functions but which are to be distributed to those functions on a broad base.[2]

The above functions are very broad in their presentations. However, more detailed functions may be established depending on the need of the company. Management should outline the specific objectives of the system before classifying and setting up functions.

[2] Life Office Management Association, Cost Committee, *Functional Costs Manual,* (Detailed Discussion of Functional Costs), Life Office Management Association, New York, 1957, p. 11.

The costs to be compiled under a functional cost system for an insurance company are direct, internal indirect and external indirect.

1. *Direct*—expenses directly associated to a specific function within a department.
2. *Internal indirect*—expenses within a department attributable to more than one function.
3. *External indirect*—expenses within one department but for the benefit or service of other departments.

Basically, the expenses would be accumulated by the establishment of cost centers which represent a unit performing a sequence of operations which compose a function. A cost center, as a basic organizational unit, could be a department. Usually there are two types of cost centers, operating and service. An operating cost center directly represents a function or functions. A service cost center usually aids and facilitates in the operations of operating cost centers. The functional allocation of direct costs is the first objective. Labor costs, usually being the largest of the direct costs, are the most logical expense to be determined first by operating cost centers. Thus other related expenses may be allocated on the basis of labor costs as they usually have a direct relationship to salaries and are relatively minor as compared to labor costs. In cases where other expenses do not have a direct relationship to labor costs, various other means are available for allocation. Such means are per capita (number of employees involved in the function) and general expense ratios. It must be kept clearly in mind that indirect costs should be functionalized, as these expenses can be a sizable portion of the total expense and can hardly be eliminated if a true cost is to be obtained.

Identification of cost centers is a major task in costing. The number and size of cost centers in an insurance company depend on the size of company, arrangement of its operations, detail of functional breakdown and the available information. A cost center may contain one clerk or one hundred clerks, depending on the relationships of operations performed and the functions established. A cost center may comprise a department or a department may have many cost centers.[3] Thus, departmental expense classification is necessary to properly determine the correct cost center and departmental expenses. Determination of departmental classification of expense is relatively easy on the basis of accounting documents.[4]

It is more difficult to functionalize but, no matter how or where the expense

[3] Life Office Management Association, Cost Committee, *Life Office Cost Analysis, A Manual of Procedures.* (Study in Cost Analysis Techniques and Methods of Expense Measurement), Life Office Management Association, New York, 1948, p. 10.

[4] *Ibid.*

was incurred, it can always be associated with a certain function. This requires either costing to operations and combining to function or only to operations if the function is narrow in scope and operations can be economically functionalized.

Allocation to functions must be supplemented by allocation to business lines if management is to obtain the cost of its products. This allocation is becoming necessary because many companies are selling more than one line of business. The line-of-business distribution is another way of apportioning the expenses of cost centers, individuals or departments. This allocation classifies the various functions to specific lines such as ordinary, group, sickness and accident, and industrial insurance. Thus, the final cost system provides costs of functions by lines of business, with subsidiary costs as to new and renewal insurance. There is also a place for incremental or marginal costing. Secondary lines of business should bear only the cost of additional operations required by reason of their presence.[5] When a new line of business is instituted it is usually recognized as undesirable to charge the line with its full share of service and executive departments for the first few years.[6]

Since salaries and related expenses are the major expense of most cost centers, as already noted, distribution methods are of great importance. In a few large companies, a single-function cost center may be found; in such case, no distribution problem is involved. This may be true when functions are broad in scope and few in number. However, some method of time or salary apportionment must be used for most cost centers.

Two types of standard time are present. The first, historical standards, are based upon the needed time for a given set of operations. The second, engineered standards, tell how long an operation should take and not how long it does take. Engineered standards are applicable only after jobs are determined, operations analyzed, and the elements to be standardized are defined. The standards assigned to the elements are summarized, thus giving standard time over which to allocate direct labor costs and other related expenses by function. These standards must be weighted by unit counts to appropriately distribute actual costs. Historical standards are used when actual unit count and related time are obtained by the use of records maintained by clerical operators. This information is then leveled for the average time with proper weighting applied by unit counts to allocate direct labor costs and related expenses by functions.

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[5] Life Office Management Association, Cost Committee, *Functional Cost Manual*, (Detailed Discussion of Functional Costs), Life Office Management Association, New York, 1957, pp. 26-27.

[6] *Ibid.*

A modification of the historical standard approach by-passes the standard calculation and is called actual times. A selected period for survey is chosen, with corresponding unit counts recorded. Thus, actual times are established, with no leveling or weighting involved, with which to distribute salaries and related expenses to functions. Another variant is the practice of some companies to have supervisors or selected staff members apportion the time of cost center and department personnel to selected operations. Subsequently, the operational time estimates are accumulated by function. The percentage of time spent on various functions is calculated and the resulting relationships are used to distribute salaries and related expenses. This approach should be used on an over-all basis where the cost center or department personnel are performing identical operations.

The unit can be calculated, once the cost of a function has been determined. Usually, the unit cost is the result of dividing the cost of the function by its appropriate base units. Each function has its own particular base unit; some functions have more than one. The eventual use of more than one unit is recommended so that costs can be examined from several viewpoints. Some of these units might be policies issued, applications submitted, and per thousand dollars of insurance paid for. Thus, the end result of the unit cost can be applied to the specific need of the company. Probably, several bases for the same function are a necessity in an inter-company cost comparison. For example, sales expenses would be more meaningful if expressed on the bases of both per policy and per thousand dollars of insurance purchased. In addition, it is well to show as separate elemental units the direct costs of a function, the allocation from service cost centers, and other overhead, if allocated. It will be possible also, to determine the variable and fixed costs in code function by segregating expenses in these classifications. Here again the various units selected for costing may be applied to line of business for product costing.

The actuarial presentation of costs will display the expenses of the life company analyzed as to functions by line of business. It will include direct as well as indirect costs and additional classifications if so desired by the actuaries. In addition, cost information should be so presented as to show costs which vary by number of policies or other selected units, and costs which are fixed. In all probability, annual presentation of functional costs will satisfy actuarial needs and will be most feasible.

Functional costs also provide management with an excellent cost control tool. The total costs per function will be quite different from expected results derived from partial cost analyses. Management must then determine the justification of the costs in relation to the objectives for which they were incurred.

The report, itself, should be in the nature of a formal report with comments and qualifications where needed. Operating management will need operational rather than functional costs.[7] Intermediate management should receive all the material furnished operating management plus cost data related to all functions in its area, perhaps on the same basis as the actuarial presentation. Over-all management should have available all this material plus a formal report presenting the total costs of the various functions and specifying direct, service and overhead costs. Comparative summaries of results of prior years are necessary for a full picture of the trends of costs.

Life Insurance Marketing — Planning and Pricing Factors

Life insurance distribution does not involve some of the functions of the marketing of tangible goods; however, the distribution does involve all the basic principles of marketing. Such functions as research into markets, demand, sales forecasting, and determination of consumer attitudes and demands are common throughout the industry. The use of advertising, sales aids and direct mailing are a definite part of the marketing pattern. Analysis of distribution costs, compensation methods of sales, functional costs of sales and management, and evaluation of sales and products are as important to insurance as any tangible product. The effectiveness of insurance distribution is dependent upon the quality and quantity of the relationships of the buyer and agent. Thus, the marketing strategy used by marketing management as a whole is most applicable in the insurance field. In present-day insurance, the agency department or division has the sole responsibility for selling and marketing functions. Broad functional controls are enforced through agency and field office administration personnel. The coordination activity is done through the home office in reliance on over-all review and advice on marketing problems.

Market planning, backed by research, starts at management levels, even though the agent is in the most favorable position to know the market. The planning is informal through agency, actuarial and investment personnel. Many of the standard forms of research are utilized by insurance companies, such as population growth data, income breakdowns, correlated sales and insurance-in-force ratios.

The principal responsibility for product planning rests upon the president of the company who usually takes steps to make sure that measures are taken to activate products. Actuaries ordinarily are the main channel for new products through the functions of product planning committees. Thus, a specimen

[7] Life Office Management Association, *Proceedings of the 1955 Annual Conference.* (Subject Matter of Papers and Discussions), Life Office Management Association, New York, 1955, p. 219.

plan, premium, and provision memorandum of the proposed policy would be presented, acted upon by the committee, approved by legal counsel and set into action by the president. However, sometimes separate staff personnel or departments are responsible for initiating products, i.e., forms or types of policies. Ideas come from many sources. Policyholders are one, although the contribution is very small. As for home office, the actuaries are a prime source but, as might be expected, the policies sold by other companies are a very usual source of new policy planning. In adopting another company's policy, however, every effort should be made to improve it for better sales potential.

Product development should include a survey of policies currently marketed, for comparison purposes. New products must first be introduced and sold to the agency force. Advertising and sales promotion material must be created. In addition, administration and home office controls need to be organized and maintained. Eventually, results should be evaluated by a critical product follow-through, that is, analysis of sales results by agency, region or section as compared to costs for each, considering all the factors of training, advertising, sales promotion, administration controls and product servicing.

A product can be sold and marketed well only if the program of price planning is carried out completely. In order to do this, accurate appraisal of the nature of the product, costs of production and distribution, existing competition and government regulations must be considered. Price planning should be a continuous process of reviewing the rate structure regularly.

Premium rates available for existing plans of insurance should be surveyed for margins of profitability between rates, plans, volume and ages. Also, demand for the policy can be calculated from these factors. Size, benefits and unit expense must also be weighed carefully. The type of policy relative to the market and the cost of marketing should be analyzed for competitive rates and justification of expense. Not only should marketing costs be scrutinized, but those of home office also. So, too, rates should be examined to determine that they include all necessary factors. Rates must be competitive and, thus, carefully adjusted for unrealistic assumptions.

Price processing involves three basic elements, of mortality, interest, and expense. Rates charged are based on mortality tables selected from the best available actuarial studies. Interest is mathematically calculated in conjunction with the mortality and based on future economic conditions. Expenses are included in the rates as a loading factor for administration and maintenance costs. Thus, by the process of effective management control, expenses remain the only assumed factor which can be effectively and currently maintained in relation to profitability of products.

Functional Costs and Marketing

In the previous pages, the requirements of a functional cost system have been summarized, including the various elements which will bear upon its development. Also, a brief resumé of the marketing aspects of insurance has been presented. The "missing link" at this point is the adaptability of functional costs to the marketing function in life insurance.

It is obvious that functional costing has definite advantages in facilitating examination of present marketing conditions. Through the detailed analysis of various functions performed in marketing insurance and the related costs attributable to each, a very detailed but concise view of the marketing elements may be obtained. By breaking down the income for each of the various elements and applying the costs relative to each, management may make definite comparisons of results for each plan, product, distribution channel and administrative cost. This will provide a projection of the specific profitability of each existing market and will aid greatly in making decisions on new markets being planned. Each function within the market can be individually analyzed for cost control, improvement and justification of expense to income.

Functional costs are definitely an aid in product planning and development. In planning new products, definite costs of operations may be obtained, from the planning stage to the sale of the product. Also, policy maintenance costs are available for comparison to expected premium income for the specific product. Thus, preliminary evaluation of results may be had to justify producing and marketing and so reduce the number of assumptions management must make in product planning. Intercompany comparisons may also be made, as to profits and margins. This detailed knowledge of markets and products helps avoid marketing of unprofitable policies. It has already been pointed out that, of the three basic elements in pricing of life insurance, the element best controlled by management is that of costs. The other two have been noted as mortality and interest. Functionalized expenses, analyzed to specific products, with all the related costs accounted for, are a great aid in setting prices. An assumed cost loading is entered into the premium rate. If the actuary knows the definite costs to be incurred, a more equitable price is possible.

This article has dealt mainly with outlining what a functional cost system for our insurance company would involve and the various aspects of insurance marketing. The objective has been to relate functional costs to the various elements in marketing. The adaptability of functional costs to marketing is by no means complete as has been pointed out. However, the availability of detailed accurate costs, where practicable, indicates that a functional cost system can be of unlimited use to management of a life insurance company.

What the Line Manager Should Expect from the Controller's Organization

by FREDERICK A. HUHN

THE MOST OBVIOUS AREA in which the controller's organization is expected to perform well is in the design and operation of the accounting system. The line manager has little direct interest in the manner in which this is done, but he is intensely interested in results. The accounting system must be tailored to fit the needs of the business and it must operate as designed. The financial results as reported through the accounting system must be meaningful and accurate if they are to be used as the basis for management action.

The next step for the controller's organization to take is to go behind these results to extract their meaning in terms which indicate action required. This is a function which has attained much greater importance in the last few years. It will continue to grow, matching the increases in competitiveness of business, complexity of manufacturing processes and advances in scientific management as applied to business administration.

As the demands for the controller's services have grown, so has his organization. Today, in most companies, the cost of performing the controller's function is a major item of business expense. The controller, himself, has become a line manager of a department with more employees than his counterpart of a generation ago would have thought possible. With this increase in size has come an increased responsibility for cost control within the controller's organization. This puts him in the position of expecting from himself the things being discussed here, accepting them, and then taking the management action indicated. In brief, the line manager should expect the controller to:

1. Run a good accounting system.
2. Keep him advised of management actions indicated by the economic facts of the business.
3. Be a good line manager in his own area.

Excluded from consideration in this paper are top-level financial affairs included in the responsibilities of some controllers. Some of the functions dis-

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cussed here may not be part of the controller's responsibility but they must be performed effectively in any company which is to prosper. The controller's responsibility for these, as a minimum, must be to assure himself that they are effectively performed by someone.

A Good Accounting System

Let us look at these areas of responsibility a little more closer. First, what does it mean that the line manager should expect the controller to run a good accounting system? This responsibility requires that the controller take action to assure that all transactions are properly recorded and processed in order that the financial results of the company may be correctly stated. This phase of the accounting system includes, naturally, records which are required to prepare the balance sheet and profit and loss statement. They are logically extended to comprehend the accounting responsibility for protecting the assets of the company. To properly discharge this responsibility, the controller must take steps to assure that no company funds, facilities, inventories or other assets are disbursed or consumed except as properly authorized under established company policies and procedures. In this connection, the recording and reporting of certain types of transactions are assigned to the controller as accounting functions. The accounting responsibility carries with it, more or less inherently, a control responsibility, which requires the controller to maintain control over:

1. All receipts and shipments of materials, products, services or facilities entering or leaving the confines of the company.
2. Contracts, purchase orders or other transactions which commit the company to a later disbursement of funds or other assets.
3. Expenditures on construction projects to assure that these expenditures do not exceed the amounts set aside for such purposes.
4. Payment of vendor bills to assure that payments cover quantities of materials actually received, that the quality meets specifications and that prices and terms are as agreed upon.
5. Preparation of invoices for products or other commodities shipped to assure that amounts shipped are billed at appropriate prices.
6. Preparation and distribution of payrolls to assure that disbursements are for the quantity and type of work performed.
7. Physical inventories of raw materials and supplies, in-process materials, finished products and capital equipment to assure that none of these items is consumed, dismantled or otherwise disposed of in an unauthorized manner, and to assure that financial reports are accurately stated.

Even the brief coverage given this subject alone makes it clear how naturally the record-keeping or accounting function evolves into the control function. The exercise of good business judgment by the accountant almost inevitably leads him into the controllership functions. In addition, the accountant automatically comes into possession of large bodies of data concerning the activities of the business. As soon as he recognizes its potential value to the management of the business, he is drawn into the role of statistician, economist and interpreter of business facts. The data the accounting department develops for invoicing purposes becomes the raw material for sales statistics, payroll data become labor statistics, payments to vendors become purchasing statistics, etc. As the value of these economic facts grows to be recognized, the controller's organization gives added emphasis to the orderly compilation of such facts for their use in guiding management decisions, in planning and in evaluating past performances.

The Implications of Economic Facts

The broadening understanding of the controller's organization and its interpretation of these facts in relation to business plans and results has led to increased acceptance of the figure function as an essential part of modern business management. By now, our second area of responsibility is no longer startling, i.e., that the line manager should expect the controller to keep him advised of actions indicated by the economic facts of business. This responsibility is predicated on several propositions, namely, that the economic facts of the business can be developed from the records, that the controller's organization understands the facts and their relationship to the business, and that the line manager and the controller recognize the contribution that can be made to the management of the business by the application of the available facts to business problems.

Let us consider whether the economic facts of the business can be developed from the records. With each increase in the size and complexity of business units, the importance of better internal data has increased. Most industrial producers make not one but a number of products, with type and style variations on even the simplest lines. More variables are introduced as the number of producing plants multiply and as different divisions are established to handle the various lines. It has been evident for some time that the corporations profit and loss report does not furnish sufficient information for modern management to run a modern business.

The general need for business for more and better facts, coupled with the

increasing complexities of modern industrial processes and modern business units, has called forth a great growth in the field of cost accounting in the past generation. The need for detailed guidance by means of this art is readily visualized when you consider the ramifications of even a single steel plant. You may start by producing by-product coke from coal and by beneficiating the iron ore, continue by smelting in the blast furnace, refining in the open hearth, then casting into ingots, hot rolling twice with the steel at plastic temperatures, cold rolling, with possibly coating, heat treatments and various finishing treatments applied, depending on the end-product. Add to these the numerous service activities in the plant and it becomes obvious that your management would be lost if it know only the total profit and loss for the works. Cost accounting has arisen to meet this need for the economic facts of a business.

In the case of United States Steel, a standard cost system is used. I could elaborate on why it is better for our use than any other type of cost accounting system, but there is hardly space here. The main reason I mention it is to prepare you for references to it. Our cost system is complicated. I do not concede that this is a disadvantage but submit it as a fact to be considered in its use. I would say also that our tax, legal and other problems are complicated, too. In these, management generally accepts the fact that the problems and their background are complicated and are content to rely upon the experts in the field. Since cost accounting is relatively new and line management often participated in the early efforts at designing cost systems and other cost controls, line management personnel have been less willing to accept the cost accountants as a professional expert than those in the other fields mentioned.

To have the line manager accept the controller's organization as his interpreter of results and performance as shown by the cost system, we have had to learn new and broader skills. You cannot interpret cost facts for an operating superintendent unless you are intimately familiar with the department and operations whose results are shown by the cost system. You cannot, as a member of the controller's organization, recommend selling prices to a sales manager, no matter how faithfully they are related to the cost pattern of the product, unless you are familiar with the commercial aspects of the problem. And so it goes in any line management area. Actually, it goes farther than this—you must know the problem first before you can get the particular facts which apply to it. In all of these activities a member of the controller's organization must be a salesman if his analyses and interpretations are to be accepted and used to the company's benefit. When the controller's organization has developed such a breed, we find he is generally accepted by the line manager.

Line managers are busy people. The controller's area is only one of a num-

ber of complex and demanding subjects with which they must deal. Being a busy man, the line manager welcomes and insists on all the help he can get from the controller's department in developing the facts applicable to the problem, together with interpretation of those facts and suitable recommendations for action. It often requires an educational or selling job to show the line manager that the controller can help him in this way but, once sold, he stays sold. At this point, I might mention that the controller's responsibility extends beyond giving the line manager "what he wants". He must go beyond this and give him "what he needs". To tell the difference calls for a high degree of discernment by the controller, and a solid business understanding.

To close this phase of the discussion, I would like to list a few of the functions included in the controller's responsibility to keep the line manager advised of actions indicated by the economic facts of the business. These functions include:

1. Analysis of cost results at each management level, identification of causes of excessive costs and recommendation of corrective action to be taken. To do this, he must locate at decentralized offices at the plants, at the plant central office and at the general offices of the company, personnel who are qualified to perform these functions. It is no longer acceptable to merely provide to the operating manager large volumes of statistical data for him to review and analyze and determine his course of action. We, the accountants, must analyze the results, determine the causes of unsatisfactory results and recommend the action to be taken; and we must perform this function for all levels of operating management from the president down to the lowest level of supervision which is held accountable for cost results.
2. Analysis of accuracy of budget standards and recommendations for corrections, where necessary. It is self-evident that, as we analyze results, we will find places where they will differ from the budget partially or wholly because the budget is incorrect. In these cases, we must take the necessary action to modify standards to measure operating performance properly.
3. Assistance in the establishment of operating objectives and the measurement of progress toward the attainment of those objectives.
4. Preparation of forecasts of the financial results of operations, with the cooperation and assistance of operating management.
5. Development of estimated financial changes to result from capital expenditures, and reporting of results against those estimates.
6. Participation in facility planning, product planning and general business planning.

Also, an Effective Manager Himself

We come now to the last of the three responsibilities, which is that the line manager should expect the controller to be a good line manager in his own area. In covering the responsibilities of modern controllership, it is apparent that the controller's organization has had to learn many new techniques, adopt a new approach and a new brand of thinking, and even develop a new type of personnel to meet rapidly expanding responsibilities. I might add one other major development which has served to keep us busy in our company. Ten years ago there were a great many jobs of a clerical nature in the operating departments, such as weighmen, recorders and operating clerks. Such jobs have been transferred almost completely to the controller's organization by now, with the attendant advantages of specialized supervision, better matching of employee aptitudes with job requirements and improved promotional sequences. In the process we acquired a very large number of employees by transfer. Similar developments have taken place in other companies.

In many companies today, the number of persons who are directly or indirectly performing the functions discussed is in the range of 5 to 10 percent of the total number on the payroll. As any operating manager will agree, any cost of this magnitude must be controlled and the line manager expects the controller to control this cost and to reduce it to the minimum practical amount. In order to meet this requirement, the controller must:

1. Include his own organization in the budgetary control system of the company and take the same kind of action in controlling his own costs as he expects the operating manager to take.
2. Continuously review methods and facilities employed. This requires that the necessary organization be established to analyze the activities of the department and devise methods for the elimination of duplication and lost motion and for the performance of the remaining work in the most efficient manner possible. Consideration must be given to the application of the most efficient equipment available, including all the older types of office equipment and punched card machines and the full range of electronic data processing machines.
3. Inherent in this area of maintaining the controller's organization at a high level of efficiency is the use of all of the other accepted tools of management, including such activities as recruiting of qualified personnel, training and development of supervisory and nonsupervisory personnel, definitions of duties and responsibilities, etc.

4. Proper organization and methods should not end with a comparison of mechanical or electronic data processing with manual operations. Specialization of people in accounting work should be carefully reviewed as a means of lowering costs.

I should point out that this last area is one which our company has found rewarding but which may easily be overlooked. As an accounting organization starts to become concerned with analytical matters, there is a tendency to add analysis to previous duties. Instead of becoming an analytical specialist, the accountant continues to draw off data from source documents and to run a calculating machine. We have found that there is a decided advantage in having a clear division between clerical and analytical activities. Possibly this is easier to put into effect in a large organization such as ours, but I think that the practice will be beneficial in much smaller groups than would ordinarily apply it.

I am convinced that a good clerk can take over the routine phases of accounting work and do it more cheaply and better than an analyst at double the salary. At the same time, the analyst is freed to do the higher phases of his job. Routine work frequently bores the type of mental race horse the controller's organization needs to meet its new responsibilities. (There is an odd sidelight which I have observed regarding this practice of divorcing clerical and analytical duties. We have been doing this for years in our accounting department, yet the only times I have noticed the idea in print, it has been written up as a way to solve the shortage of engineers. Maybe a public relations expert should be included in each controller's organization hereafter!)

Figures Only the Beginning

This article may have taken an unexpected turn from the viewpoint of an accounting reader. He may have expected a detailed discussion of statistical and visual presentation of cost, price and profit data. What I have really said is that the controller should do a good, workmanlike job of managing his department and that he should also provide to operating management a firstclass advisory service in the area of cost and profit control. This is what the line manager should want and should expect from the controller's organization.

Distribution of the Cost of Insurance

by J. VICTOR BOWMAN*

MANY ACCOUNTANTS recognize only the premium invoices as the base from which they make an arbitrary distribution of the total cost of insurance. This in itself may be a perfectly satisfactory method for many companies and businesses, but I would like to point out a few refinements practiced by some companies.

There is either a deductible or franchise feature in most insurance policies that are purchased by business today to take advantage of premium savings. The larger the company or business the larger this deductible or franchise may be, as they can proportionately absorb the small losses without tangible injury to the owners. These losses are very often charged to another account rather than insurance so that the insurance account is not a complete and accurate total of the true cost of insurance and fails to serve as a good tool in budget preparation. In addition, the accountant is unable to provide complete factual data on which to make a decision as to the raising or lowering of the deductible or franchise feature of a policy at renewal date or any other time.

The solution to this problem is an outline of coverages that should be provided to all responsible accounting personnel. Furthermore, *all* losses should be reported to one person who maintains a loss register and is responsible for submitting all insurance claims. With a loss register and the insurance premium record, data is available for obtaining a truer cost of insurance for budget purposes and is a necessary tool to be used in deciding the limits for the deductible or franchise feature of various insurance policies. Another benefit which can and should be derived from having one person responsible for filing of all claims is that he may find it advantageous not to file a claim, depending on the claim experience to date and/or the type of policy which the insured may have. An additional refinement that should be considered is in obtaining lower insurance rates by providing fire brigades, small and large fire prevention installations such as extinguishers, hose carts, sprinkler systems, etc.

A final refinement that is very often not known to the accountant is the coverage and services actually provided by some of the various insurance policies. A good example is the boiler and machinery policy in that from 50 to 80 percent of the premium expense is for authorized engineering services provided by the insurance company. If such service were not provided, the company would have to pay separately for such service in order to meet state requirements. Another good example of a service rendered by the insurance company is under the general liability policy in that the insurance inspector's signature is recognized for required elevator inspections. Therefore, the question may be raised as to whether the total premium cost should be allocated entirely to insurance or a distribution made.

In conclusion I would strongly recommend that all accountants not just look upon the cost of insurance as an area where they can make no significant contribution. They should rather look into and familiarize themselves with the insurance account and assist in achieving the savings which are undoubtedly available in most companies.

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The "Feedback" Aspect of Reporting

by WILLIAM R. RIEKERT

THE CONCEPT of performance reporting is advantageously applied to all forms of businesses. It is generally understood that benefits are maximized when each report is tailored for its intended use. In attempting to devise a meaningful, tailored report, management frequently fails to obtain or create a sufficient amount of useful "feedback" information. It is this aspect of reporting on which emphasis will be placed in the following discussion.

It is common practice to establish a reporting system for the purpose of recording performance, interpreting results, and communicating this information to interested individuals. The principal accomplishment of this practice is that of providing a means for directing attention to problem areas; it does not normally provide a solution to the problem or indicate the nature of required action.

Under normal practice, it is customary to issue what will be referred to as "progress reports." Progress reports provide a comparison of results against predetermined standards or past performance. At best, they are merely a matter of history. They are a guide to future operations only to the extent that satisfactory past performance is an indication of continued success.

For the purpose of the discussion, reporting devices which both measure progress and guide decision-making will be called "feedback" reports. It is such a reporting which leads directly to the making of a decision as to the future course and final result. A comparison of normal progress reports with "feedback" reports is made in the following case history.

A Case History

A manufacturing component was in process of converting incentive time standards from "temporary" to "established". Temporary standards were hurriedly installed at the outset of operations in order to give workers an immediate inducement to produce greater quantities of work. A large number of these quickly calculated temporary standards were deliberately set on the high side so as to provide greater incentive. After reasonable experience with these standards, it was decided to review them to determine more equitable rates, or

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established standards. The new rates, of course, would be generally lower and it therefore was advantageous from a cost standpoint to make the conversion as early as possible.

The procedure for conversion consisted of taking motion pictures of incentive workers, applying values to the work elements involved, summarizing these values, and projecting incentive rates for similar work on the entire, anticipated range of sizes. This information would then be listed (or charted) on a planning record. For example, a lather operator might be photographed turning an eighteen inch shaft. If the study indicates a $.90 value for this operation, perhaps a rate of $1.00 could be applied to a twenty inch shaft, $1.20 to a twenty-four inch shaft, and so forth. All of these values might then be posted to a planning record which we shall call a chart. This chart is then used to price any pay vouchers covering the turning of a shaft. To accomplish the conversion in the most advantageous manner, it was obvious that the "most important" items should be studied first so that attendant charts can be prepared and used for pricing vouchers (Exhibit 1). Therefore, to implement the

Accumulation of Vouchers by Planning Chart

Planning chart	Factory area	Voucher reference	Voucher value	Chart value	% to total
A	Fabricating	30	$ 30.00		
		31	10.00		
		32	4.00	$ 44.00	22.0%
B	Coil Winding	61	7.00	7.00	3.5
C	Fabricating	76	28.00	28.00	14.0
D	Assembly	70	2.00		
		71	1.00	3.00	1.5
E	Assembly	75	16.00	16.00	8.0
F	Coil Winding	40	1.00	1.00	0.5
G	Fabricating	20	5.00		
		21	1.00	6.00	3.0
H	Fabricating	90	10.00		
		91	12.00		
		92	1.00	23.00	11.5
I	Coil Winding	60	8.00	8.00	4.0
J	Assembly	17	15.00	15.00	7.5
K	Coil Winding	50	1.00		
		51	1.00	2.00	1.0
L	Fabricating	73	20.00		
		74	18.00	38.00	19.0
M	Assembly	72	4.00	4.00	2.0
N	Assembly	78	5.00	5.00	2.5
			$200.00	$200.00	100.0%

EXHIBIT 1

overall program in the most effective manner, it would be necessary to give priority to those charts which would affect the greatest value of payroll vouchers being processed in the shop.

The Futility of Inadequate Reporting — A Comparison

The factory manager attempted to devise a reporting system which would assist in the development of this program. He suggested that payroll vouchers be coded in accordance with the status of the time standard (established or temporary). These vouchers would then be summarized for each factory area to determine the percentage by which standards had been "established". This report, as illustrated in Exhibit 2, would measure the degree of progress being made on the program.

Factory unit	Per cent "established" standards		
	First month	Second month	Third month
Fabricating	31.2%	31.2%	55.4%
Coil Winding	43.7	43.7	43.7
Assembly	-	44.2	44.2
	25.5%	35.0%	52.0%

NOTE: Details supporting all tabulations appear in Appendix A and Appendix B.

EXHIBIT 2

Ostensibly, the above report would enable management to direct attention to problem areas or those areas in which progress had not been made at an acceptable rate. In discussing this report the factory manager was unable to explain how attention to a problem area could result in selecting those charts which should receive priority. It seemed quite obvious that this report gave a yes or no type answer and did not indicate the specific work which should receive priority. Undoubtedly, its use would result in a system of trial and error rather than an effective procedure which made use of a meaningful report.

An improved approach would be to code each voucher for a given period with the planning chart reference, and summarize the vouchers (by chart) as shown on Exhibit 3. By listing charts in order of value, the preferred sequence of selection for processing planning is obvious. Cumulative percentages indicate the degree of progress as the status of charts changes from temporary to established in the preferred order. The amount of progress which can be expected from processing any given chart also becomes apparent. The "feedback"

Chart	Value of vouchers-typical week		
	Amount	% of total	Cumulative %
A	$ 44	22.0%	22.0%
L	38	19.0	41.0
C	28	14.0	55.0
H	23	11.5	66.5
F	1	0.5	100.0
	$200	100.0%	

EXHIBIT 3

Status		Value of vouchers-typical week		
		Amount	% of total	Cumulative %
Completed charts		$ 82	41.0%	41.0%
Most important uncompleted charts	C	28	14.0	55.0
	H	23	11.5	66.5
	E	16	8.0	72.5
	J	15	7.5	82.0
Eight remaining charts		36	18.0	100.0
		$200	100.0%	

EXHIBIT 4

Status		Value of vouchers-typical week		
		Amount	% of total	Cumulative %
Completed charts		$164	82.0%	82.0%
Most important uncompleted charts	I	8	4.0	86.0
	B	7	3.5	89.5
	G	6	3.0	92.5
	N	5	2.5	95.0
Four remaining charts		10	5.0	100.0
		$200	100.0%	

EXHIBIT 5

provided by this reporting system all but determines the proper future course of action.

Under "feedback" reporting, the following report would probably have been issued after the first month (Exhibit 4). Accordingly, the report after the third month would appear as on Exhibit 5. It will be noted that the reports depicted on Exhibits 3 and 4 not only indicate progress but, in a helpful way, point out the work still to be performed.

A meaningful, tailored report, employing the proper use of "feedback", is obviously superior to a report devised along conventional lines. One of the more dramatic features of this comparison, however, is that in a given instance a conventional report might be of no use at all. For example, in the situation illustrated above, the use of progress reports would have actually hindered the conversion.

Application of Progress Reporting

Assume that after each progress report is issued, emphasis is placed on charts pertaining to the factory area showing the least progress. Then, within any given factory area, charts are processed in random (alphabetic) order. Since no prior reports are available, the first month's processing is also taken at random. Under these conditions, reports will be issued, decisions made and charts processed (two a month) as shown on Exhibit 6.

	Progress Reports				Area to receive priority
	Total	Fabricating	Coil Winding	Assembly	
January	25.5%	31.2%	43.7%	-%	Assembly
February	35.0	31.2	43.7	44.2	Fabricating
March	52.0	55.4	43.7	44.2	Coil Winding
April	56.5	55.4	100.0	44.2	Assembly
May	66.0	55.4	100.0	88.4	Fabricating
June	78.5	73.1	100.0	88.4	Fabricating
July	100.0	100.0	100.0	100.0	

EXHIBIT 6

Significant Differences in Results

Although the use of progress reports appears to be satisfactory, the picture for the entire factory does not compare favorably with that of other approaches. This is illustrated in Exhibit 7. It should be noted that the average status of conversion during the first six months is 52.2 percent when progress reports

	Percentage of voucher value "established"		
	Using progress reports	Using no reports	Using "feedback" reports
January	25.5%	25.5%	41.0%
February	35.0	41.0	66.5
March	52.0	49.5	82.0
April	56.5	64.0	89.5
May	66.0	75.5	95.0
June	78.5	95.5	98.5
July	100.0	100.0	100.0
Average over first six months	52.2	58.5	78.8

EXHIBIT 7

are used for deciding which charts will be processed. This performance only slightly exceeds the mathematical probability of 50.0 percent, and even this appears accidental since random (alphabetic) selection results in 58.5 percent. By contrast, the use of "feedback" reports obtains the best possible performance or a 78.8 percent average during the first six months. It should be apparent then that the effort expended in preparing progress reports was virtually wasted. On the other hand, a "feedback" report would have been extremely worthwhile.

The logical question to be raised concerning the above problem is: why should not the use of progress reports yield a more favorable result? The basic reason is that knowledge of the factory area in which least progress has been made is not knowledge of the chart which should be worked on. There might be dozens of charts to be processed in a given factory area showing good progress. In such instances, however, the single chart might be far more valuable than a dozen of the others. Logically, then, it should be selected for processing rather than any of the others. A progress report by factory area will not portray this picture. It therefore cannot be construed as providing usable "feedback".

A reporting system which employs the use of "feedback" information becomes a very useful tool for assisting in management decisions. Obviously, no single device or mechanical contrivance could ever be considered a substitute for good judgment, but a nicely tailored report containing "feedback" information can provide the basis for using good judgment.

Controlling Depreciation Charges on Mass Properties — A Punched Card Statistical Procedure

by JOSEPH P. VOGEL

THE PURPOSE of this paper is to outline a method of controlling depreciation charges on mass property accounts through the use of a statistically estimated depreciation accumulation. The essence of this approach is based on the theory that property lives follow a mortality curve, just as is the case with the lives of people. This concept is not new, but its application to the depreciation problem posed by property groups is not in general use.

The inspiration for writing this paper stems not from a desire to impress the reading public with the abstruseness of the author but to supplement W. Chester Fitch's article on the same subject (Depreciation on Mass Properties—An Application of Statistical Concepts, *N.A.A. Bulletin,* December, 1959). Bereft of even the hope of comprehending the mathematical bases on which mortality and survivor curves are erected, my purpose is to give heart to those of the school of liberal arts that they (better, we) may profit from the technical proficiency of the students of mathematical science without understanding fully the methods they employ to arrive at their conclusions. From this point on we will proceed on the postulate that simplicity is the keystone of success, although it may possibly confuse our precise counterparts, not familiar with our accounting and punched card jargon.

The Traditional Approach

The determination of proper depreciation charges and adequate depreciation accumulations in the reserve for mass property accounts, presents a more complex problem than it does for single units of property. Since mass property accounts are composed of large numbers of like types of properties which are not usually retired as a whole, it is not feasible to account for retirements using the methods normally employed when retiring a single unit of property.

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The normal method of accounting for retirements of units within a property group is to charge the entire cost of the retired units to the reserve, also charging and crediting the reserve for the removal costs and the salvage respectively. Because of the large volume of units involved in a property group the total amount of depreciation accrued for the units being retired is not obtainable, thus making it impossible to adjust for an over or under accrual.

The mass property depreciation problem is peculiar to the utility industry, although not limited to it. Historically, the straight-line method, which lends itself to single units of property, has been used almost universally by utilities in depreciating property groups. Since the rate is calculated on the basis of the expected life of all the units in the mass-property account, when applied to the gross surviving investment it will eventually recover the cost. The reckoning of the average service life of the units in the mass-property account, however accurate this estimate may prove to be, when used in the traditional straight-line method falls short of the desired goal, because no recognition is given to the retirement pattern of the property being depreciated. Retirements may be concentrated early or late over the life of the group (before or after average life). Until this characteristic of the property is determined and a means provided to incorporate it in the depreciation calculation, the depreciation accumulation will not accurately reflect past retirements and probable future retirements.

A Statistical Approach

Returning to the premise that property mortality statistics lend themselves to the same type of analyses as used by an actuary in calculating risks of life insurance policies, we have the basis for a more realistic approach to the estimating of the proper depreciation accumulation for any given mass-property account. The statistically calculated accumulation is the key to the proper control of depreciation charges. By comparing the book reserve figure with the statistical reserve we can now determine if the mass account is over or under accrued. Once this has been determined, the depreciation accrual can be adjusted to correct for whichever condition exists. The following pages outline a method designed to keep the depreciation reserve in line with actual retirement behavior.

Curve Fitting

The procedure described below is generally known as the Iowa-Curve Method. Using obituary listings on property showing the ages of the retired units and current records showing the ages of the units remaining in service, mortality statistics can be plotted and visually fitted to one of the family of 18 Iowa

Survivor Curves. If the data used can be developed from retirement experience for a band of a relatively few years, each curve plotted will tend to reflect the current retirement and replacement policy now in effect. Although the curves developed are individual to the type of property, they normally can be fitted to one of the Iowa Curves. This method of analyzing mortality statistics determines the type of curve (the extent to which retirements are concentrated before, after or at average life) and the average service life of the type of property being studied.

In cases where the plotting of data gives an erratic picture or where the retirement data is scarce in relation to the probable average life, the orthogonal polynominal process of mathematical curve fitting would probably be helpful. (For a comprehensive coverage of the orthogonal polynominal process of mathematical curve fitting see *Research Bulletin 297* of the Agricultural Experiment Station, Iowa State University, Ames, Iowa.) If aged retirements and survivors are not available, the "simulated plant balance" method can be used (programmed for the I.B.M. 650 and 604 electronic computers by William H. Caunt of the Public Service Co., of Newark, New Jersey). Using plant balances and gross additions, this process makes a determination (through a trial and error method) of theoretical survivors for each vintage and balances to actual plant balances, showing the difference between the theoretical and actual balances.

It must be noted at this point that the previous retirement experience alone does not constitute the sole criterion for estimating future life. It often is necessary to modify the results of mortality studies by managerial judgment.

Preparation of Punched Card Input

Having been blessed with the average service life and the proper survivor curves for each mass account, the punched card processing may begin. A deck of punched cards for each type of survivor curve is prepared from tables derived from the Iowa Curves. These tables show age as the percentage of average life and the average life method depreciation accrual percentage. (See Exhibit 1 for a sample of an L-2 table). The figure shown opposite the percent of average life is the percent to be applied to the surviving dollars for that age in order to determine the amount of the calculated depreciation accumulation. Moving the decimal point two places to the left, this ratio corresponds to the right-hand column of figures shown on Exhibit 5, p. 49 of Mr. Fitch's article mentioned above.

Before the table cards can be put to work, a punched card must be prepared for each prior year, showing the original surviving investment in dollars, the

year installed, the property account number, the average life (represented as the average service life depreciation rate) and the type curve applicable to the property group. This is done for each mass-property account.

TYPE CURVE L_2 DEPRECIATION RESERVE FOR SURVIVORS, 0% INTEREST

Age % of Al.	Percent Surviving	Depreciation Reserve, % Average Life Method	Depreciation Reserve, % Unit Summation Method	Age % of Al.	Percent Surviving	Depreciation Reserve, % Average Life Method	Depreciation Reserve, % Unit Summation Method
1	100.000	1.000	1.244	61	81.928	48.976	60.313
2	99.999	1.999	2.527	62	81.056	49.433	60.877
3	99.997	2.996	3.789	63	80.167	49.877	61.427
4	99.992	3.992	5.047	64	79.261	50.310	61.963
5	99.985	4.985	6.301	65	78.339	50.731	62.486
6	99.975	5.976	7.551	66	77.402	51.141	62.996
7	99.961	6.962	8.795	67	76.453	51.540	63.494
8	99.942	7.945	10.034	68	75.491	51.929	63.979
9	99.918	8.924	11.266	69	74.519	52.308	64.452
10	99.889	9.897	12.491	70	73.536	52.678	64.915
11	99.854	10.866	13.708	71	72.545	53.038	65.366
56	85.984	46.498	57.272	116	31.881	64.941	79.092
57	85.217	47.021	57.911	117	31.200	65.187	79.323
58	84.426	47.530	58.534	118	30.529	65.433	79.553
59	83.614	48.025	59.142	119	29.869	65.680	79.781
60	82.781	48.507	59.735	120	29.219	65.928	80.007

EXHIBIT 1

Punched Card Processing

The punched card processing can be done with either Remington Rand or I.B.M. calculators and tabulating machines. The sample listing shown as Exhibit 2 was produced by use of an I.B.M. 604 calculator and an I.B.M. 407 accounting machine.

There are two calculator steps involved in computing the depreciation accumulation amount for each card.

Step I (using data card only, calculate percent of average life):

Using—X as year installed,
Y as current year,
R as average life depreciation rate.

To find—A as age,
P as percent of average life.

In the example shown on Exhibit 2—

A equals Y minus X minus 0.5 (58-42-0.5 = 15.5), P equals A times R ($15.5 \times 4.35 = 67$).

One half year is subtracted from the age because year end figures are used and it is assumed that plant additions are scattered uniformly throughout the year.

After the percent of average life is calculated for each data card, the data cards are broken down by type of curve. The data cards are merged behind the appropriate table card by matching on percent of average life. During the

subsequent processing step, the accumulation ratio (expressed in percentage) is gang-punched into the data card from the table card so that this figure may be printed on the report.

Step II (using data cards and table cards, calculate accrued depreciation):

Using—L as depreciation accrual percent,
P as plant amount (gross investment in surviving property).

To find—D as calculated accrued depreciation (depreciation accumulation).

Exhibit 2—D equals L times P ($.51540 \times 12{,}941 = 6{,}670$).

Account No.	Year Installed	Age	% of Average Life	Type Curve and Aver. Life	Average Life Rate	Plant Amount	Accrued Depreciation
1.358.00	11	46.5	202%	L2-04.35	84.898%	1,096	930
1.358.00	12	45.5	198%	L2-04.35	84.097%	1,096	922
1.358.00	13	44.5	194%	L2-04.35	83.285%	1,096	913
1.358.00	14	43.5	189%	L2-04.35	82.252%	1,096	901
1.358.00	41	16.5	72%	L2-04.35	53.390%	9,342	4,988
1.358.00	42	15.5	67%	L2-04.35	51.540%	12,941	6,670
1.358.00	43	14.5	63%	L2-04.35	49.877%	1,210	604
1.358.00	44	13.5	59%	L2-04.35	48.025%	3,535	1,698
1.358.00	45	12.5	54%	L2-04.35	45.411%	7,263	3,298
1.358.00	46	11.5	50%	L2-04.35	43.061%	9,600	4,134
1.358.00	47	10.5	46%	L2-04.35	40.472%	21,526	8,712
1.358.00	48	9.5	41%	L2-04.35	36.912%	44,013	16,246
1.358.00	49	8.5	37%	L2-04.35	33.834%	23,280	7,877
1.358.00	50	7.5	33%	L2-04.35	30.598%	6,532	1,999
1.358.00	51	6.5	28%	L2-04.35	26.392%	41,354	10,914
1.358.00	52	5.5	24%	L2-04.35	22.910%	26,457	6,061
1.358.00	53	4.5	20%	L2-04.35	19.320%	42,642	8,238
1.358.00	54	3.5	15%	L2-04.35	14.685%	28,734	4,220
1.358.00	55	2.5	11%	L2-04.35	10.866%	39,653	4,309
1.358.00	56	1.5	7%	L2-04.35	6.962%	65,972	4,593
1.358.00	57	.5	2%	L2-04.35	1.999%	94,586	1,891
						564,513	151,744

EXHIBIT 2

A card sorter is used to separate the table cards from the calculated data cards. The accounting machine is then used to print the report shown in Exhibit 2, taking totals of plant amount and accrued depreciation by each plant account. During this operation, summary cards can be punched for each plant account, showing account number, type curve, average life depreciation rate, plant amount and accrued depreciation. By punching in this summary card the book reserve amount, the remaining calculations can be accomplished by a third calculator step, if card volume warrants it.

Step III (calculate annual accrual using the Remaining Life Rate):

Using — B as book reserve (assuming a figure of 140,560),
R as average life depreciation rate,
P as plant amount,
D as calculated accrued depreciation.

To find—C as average life straight line annual accrual,
E as remaining life depreciation rate,
F as remaining life annual accrual.

C equals R times P ($.0435 \times 564{,}513 = 24{,}556$),
E equals C over P minus D
($24{,}556$ over $564{,}513 - 151{,}744 = .0595$),
F equals P minus B times E
($564{,}513 - 140{,}560 \times .0595 = 25{,}225$).

The remaining life method is the application of the remaining life rate (as calculated above) to net plant (original cost less the book reserve). The use of this type of calculation for the annual accrual keeps the book reserve always tending toward the reserve indicated by the most recent study. Had the book reserve indicated an over-accrual, the annual provision for depreciation would have been less than the average life straight-line accrual of 24,556 (e.g., a book reserve of 170,000 would have produced an annual provision of 23,474). This method offers a gradual correction of the book reserve to the statistical reserve, rather than risking a lump sum correction that may possibly distort the current year's depreciation expense.

This study is done annually, using plant balances at December 31 of each year. The annual accrual obtained by this method is adjusted for negative or positive salvage factors and divided by 12 to supply monthly accruals for the current year for the property in service at the beginning of the year. The monthly accruals are adjusted for plant additions and retirements as they occur throughout the year to arrive at the appropriate depreciation charge for each month.

Summary

This procedure is one of several methods of exercising a continuing control of depreciation accounting through the use of statistically estimated reserves. Its accuracy depends primarily on the validity of the mortality studies which determine the retirement characteristics and the average life of the property. The growing acceptance of this method of estimating depreciation reserves in utility rate matters should encourage companies faced with this problem to look more closely at this and related methods of statistically estimating the adequacy of the book reserve figures.

Productivity Portrayal at the Bargaining Table

by PETER C. HIGGS

IN MANY CASES when management and labor meet around the bargaining table the question of productivity is ignored or overlooked by both sides for various reasons, one of which may be ignorance of the facts. It is in these cases that information provided by the cost accountant may prove invaluable to both sides in reaching an agreement which is mutually satisfactory and beneficial to the public at large. In the following hypothetical instance the author has endeavored to show step by step the utilization of cost accounting techniques under the conditions portrayed. It is realized that the one-product company used for illustration, where variables are truly variable and fixed costs remain fixed, is a cost accountant's "dream" but, nevertheless, the principles apply. It is the cost accountant's duty to search out these principles and present them in simple terms.

Not a Routine Task, Perhaps

The president of the company was preparing himself for a battle across the bargaining table with officials of the workers union and was not too happy about it. He knew that the union were going to ask for an increase in pay and nothing short of a miracle was going to convince its members that the company could not afford it.

A few days before the union meeting the president made a request to the treasurer for the usual financial statements which, to that stage, were the only bargaining tools they had but, because the treasurer was about to leave on vacation, the task was delegated to the cost accountant.

The cost accountant, somewhat taken aback by this assignment, threw himself into it with great enthusiasm because he felt that this was a good opportunity to apply some of his specialized knowledge and ability. He first examined the balance sheet (Exhibit 1) and then produced the statement of income (Exhibit 2).

Balance Sheet		
Current assets	$ 100,000	
Fixed assets (net)	990,000	
Other assets	10,000	
Total assets		$1,100,000
Current liabilities		$60,000
Capital stock	$1,000,000	
Retained earnings	40,000	1,040,000
Total liabilities and net worth		$1,100,000

EXHIBIT 1

PETER C. HIGGS is Supervisor-Accounting Services, Chain Belt Ltd., Toronto, Canada, a subsidiary of Chain Belt Co., Milwaukee, Wisconsin. Formerly, he worked for several years in municipal accounting and administration. Mr. Higgs obtained his Registered Industrial Accountant degree from Toronto University.

Statement of Income	
Net sales (2,400,000 units @ 50¢)	$ 1,200,000
Cost of sales	930,000
Gross margin	$ 270,000
Sales & administration expense	150,000
Net operating profit before taxes	$ 120,000
Taxes	48,000
Net profit	$ 72,000

EXHIBIT 2

Product Unit Cost of Sales	
Direct labor cost (.05 hrs @ $2.00)	$.100
Direct material	.050
Factory expense absorbed	.200
	$.350

EXHIBIT 3

The cost accountant was quick to see that this was the opportunity to use his monthly unit cost statement (Exhibit 3) which nobody had ever noticed.

However, the cost accountant realized that the figures which he had provided (Exhibits 2 & 3) would not be useful in presenting his case, so he went about segregating the factory expense items into their fixed and variable elements in order that he could prepare a marginal income statement.

Not the Computation of Data Only

From information he had been collecting over the past few years, he was able to prepare the following tabulation (Exhibit 4).

He plotted the information on a graph (Exhibit 5) and checked it mathematically (Exhibit 6), using the method of least squares.

From the foregoing calculations the cost accountant was able to determine that the variable cost per unit was 20 cents (labor 10¢, material 5¢ and variable manufacturing expense 5¢) and that annual fixed expenses amounted to $450,000, or 15¢ per unit at that volume.

By persistent inquiry and investigation, the cost accountant found out that the following situation would prevail if the union were successful in their demands:

Unit Production and Manufacturing Expense		
Period	Unit Production	Mfg. expense
1st Quarter	550,000	$ 140,000
2nd Quarter	700,000	147,500
3rd Quarter	750,000	150,000
4th Quarter	400,000	132,500
Total	2,400,000	$ 570,000

EXHIBIT 4

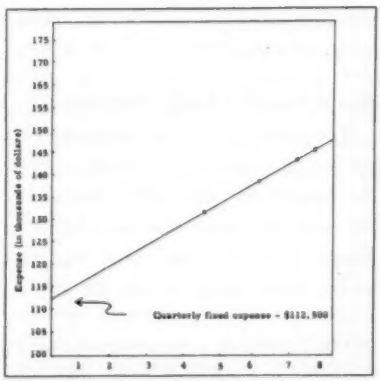


EXHIBIT 5

Computation of Fixed Expenses

Period	(a) Units	(b) Exp.	(c) Diff. from av.	(d) Diff. from av. (a)	(b)	(e) (c)^2	(f) (c)x (d)
1st Quarter	550000	140000	- 50000	- 2500		25000	12500
2nd Quarter	700000	147500	100000	5000		1000000	50000
3rd Quarter	750000	150000	150000	7500		2250000	112500
4th Quarter	400000	132500	-200000	- 10000		4000000	200000
	2400000	570000				7275000	375000
Average	600000	142500					

Variable expenses = $\frac{(f)}{(e)} = \frac{375000}{7275000} = .05$

Fixed expenses per quarter = 142,500 - (600,000 x .05) = $112,500

EXHIBIT 6

1. Direct laborers would receive a 5-percent increase in pay.
2. Ten percent of the variable manufacturing expense is labor which would also benefit by a 5-percent increase.
3. Foremen salaries, amounting to $8,000 (included in fixed expense), would also increase 5 percent.
4. Selling and administration salaries, amounting to $100,000, would be increased 5 percent.
5. The company desired the same return on capital. (No additional capital is necessary.)

The cost accountant made the following list of costs at normal operation of 3,000,000 after taking into consideration new demands:

	Total	*Per Unit*
Direct Labor	$315,000	$.105000
Direct material	150,000	.050000
Variable overhead	150,750	.050250
Fixed overhead	450,400	—
Selling & administrative	155,000	—
Profit required	120,000	—

To determine how many units must be sold to enable the company to recover all its fixed expenses and show a $120,000 profit, he computed the profit/volume relationship as follows:

$$P/V = 100 - \frac{\text{Variable cost}}{\text{Selling price}}$$

$$\text{or } 100 - \frac{615,570}{1,500,000} = 58.962\%$$

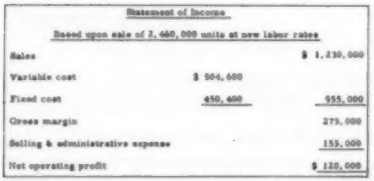
He found the break-even point as follows:

$$B\text{-}E = \frac{\text{Fixed expenses}}{P/V} \text{ or } \frac{725,400^*}{.58962} =$$

$1,230,000 or 2,460,000 units.

*Fixed manufacturing expense	$450,400
Selling & administrative expense	155,000
Required profit	120,000
	$725,400

A statement of income was then prepared to prove the above calculation (Exhibit 7).



Statement of Income

Based upon sale of 2,460,000 units at new labor rates

Sales		$ 1,230,000
Variable cost	$ 504,600	
Fixed cost	450,400	955,000
Gross margin		275,000
Selling & administrative expense		155,000
Net operating profit		$ 120,000

EXHIBIT 7

The cost accountant summarized his findings in report form, pointing out that the company could maintain its return on capital despite the 5 percent increase in wages provided it could produce another 60,000 units which represented an increase of 2.5 percent. He further pointed out that his figures were based upon an increase in production and not an increase in productivity.

The president was very impressed with this unaccustomed wealth of information but pointed out that, even though the factory could produce the additional units, it would be impossible to sell them. He told the cost accountant that the price would have to be increased 2.5 percent to cover costs, even at the risk of losing some of the present market.

Much as he respected the judgment of his superiors, the cost accountant could not accept this attitude and asked how many units could be sold if the price were lowered, say, 10 percent. This was "pay dirt" for the answer was very definite — 3,000,000 units, easily. Evidently there was an elastic market to be taken advantage of. With this information, it was not long before the cost accountant had prepared the following statement of income, based upon sale of 3,000,000 units at new sales price:

Sales		$1,350,000
Variable cost	$615,570	
Fixed cost	459,400*	1,074,970
Gross margin		$ 275,030
Sales & administrative expense		155,000
Net operating proft		$ 120,030

*It was estimated that the increased production would require the services of two more foremen who would be paid $4,500 each.

The Results Are Rewarding

As a result of his knowledge of cost behavior, the cost accountant had now proven that labor rates could go up and prices go down at the same time but still he was not quite satisfied. He noticed that the shareholders of the company had not directly benefited from the change, since the profit before taxes ($120,000) remained the same as before.

Unit Cost of Sales		Profit & Loss Statement		
Direct labor cost (.03 hrs @ 2.10)	$.063	Sales (3,000,000 units @ 45¢)		$1,350,000
Direct material	.050	Variable cost	$489,750	
Variable factory expense	.050	Fixed cost	459,400	949,150
	$.163	Gross margin		$400,850
Fixed factory expense	$ 459,400.000	Sales & administrative expense		155,000
(Unit costs rounded off to 3 decimal places)		Net operating profit		$245,850

EXHIBIT 8

A careful examination of production schedules disclosed that about 60 percent of the company's production was carried out in the second and third quarter, with a large decline in activity in the last quarter. Past experience showed this to be the case year after year, and records showed that in the fourth quarter of the year, as production declined, workers were laid off for several months at a time. If this trend were to continue, and there was every reason to believe that it would, the increased sales would call for above-normal production during the second and third quarter, which was not desirable.

The cost accountant proposed, therefore, that production be rescheduled for 750,000 units per quarter for all four quarters of the year. This would mean that the organization would operate at normal capacity the year round, resulting in total absorption of fixed expenses and full employment for twelve months of the year.

More detailed unit cost figures also supported his unofficial observations that, when workers were working under the threat of lay-off, they were inclined to go slower on the job in order to make the work last and that in busy times the reverse was true. Records showed that although the annual average was .05 hours per unit, the average during the second quarter and early weeks of the third was .03 hour per unit. It was safe to assume that the workers would produce at the faster rate under conditions of even production. Equipped with this information, the cost accountant prepared a new unit cost sheet and profit and loss statement (Exhibit 8). He knew that the figures he was about to present were based upon an increase in productivity which proved that a higher labor rate did not mean higher labor costs.

Even with the evidence in black and white, it took a lot of convincing but, having checked and re-checked the information and reasoned that the assumptions made sense, the president went to the bargaining table as if he enjoyed it.

A Closer Look at Cash Discounts

by M. D. WINTER*

SOMEWHERE in the development of the accounting practices and policies of most companies, the basic rule established was to take all cash discounts offered by the vendors. When established, this rule was undoubtedly tempered with certain practical considerations such as cash levels, size of discount offered, discount period, etc. However, over the years and with turnover in personnel, the practical side of the rule is easily engulfed in one all-overriding rule—take that discount!

Procedures in disbursement audit and accounts payable groups tend to become highly geared to give preference to the discount invoice, with little or no regard to size or nature of the discount. A ten-dollar invoice offering a one-tenth of one percent discount if paid in ten days (net discount of 1¢) is apt to get just as much attention as a thousand dollar invoice offering a two percent discount (net discount of $20.00). If work loads become heavy to a point where some discounts are missed, the large discount is just as apt to be the one missed as the 1¢ discount. Little consideration is given to the really basic question—is the discount offered really worth taking at all!

At today's economic levels, cash may be considered available at an interest rate of approximately 5 percent a year. An invoice, on the other hand, which offers a 2 percent cash discount for ten-day payment is yielding a much greater return and is obviously worth using available funds. An invoice which offers a magnanimous one-tenth of one percent for ten-day payment, however, is yielding a considerably smaller return than the interest charged for the money used to pay it. In addition, consideration must be given to the substantial extra expense involved in the specially prompt handling given to discount invoices.

In view of these considerations, the following rules for processing discount-offering invoices may be used to good advantage by most companies:

1. If the discount amounts to less than a minimum amount, say $1.00, regardless of percentage, ignore it—hold the invoice thirty days and pay at gross.
2. If the discount is over the minimum but the rate of discount offered is below one-half of one percent, still ignore it. With the expense of special handling, it will still cost you money to take the discount. Hold the invoice for thirty days and pay at gross. (Exception could be made in the case of the unusually large invoice where the dollar amount of the discount is substantial.)
3. If the invoice offers a cash discount rate of one-half percent or more and exceeds your dollar minimum, take advantage of it.

While these rules are very simple, a close scrutiny of the invoice-processing may reveal that a re-statement of those rules to the present personnel will be very much in order.

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Beyond These Covers

Books

Differential Costs and Management Decisions

D. R. C. Halford, Pitman Publishing Corp., 2 West 45th Street, New York, N. Y., 1959, 115 pp., $3.50.

Seriously concerned with marginal (direct) costs as basic to an effective costing structure and differential costs (change with alternatives) as essential to effective decision-making, the author of this book proceeds from theory of these related concepts of costs to practical applications and adds appendices to cover special situations.

Budget Control and Cost Behavior

Andrew C. Stedry, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1960, 161 pp., $1.

An attempt is made here "to bring to bear on the problem of budgetary control knowledge which is drawn from five disciplines: economics, psychology, organization theory, mathematics, and accounting". The reading may prove "hard-going" for most who tackle it, but the study enters upon many problems of significance, including analysis of variances.

Organizing for Effective Production Planning and Control

American Management Association, 1515 Broadway, New York 36, N. Y., Paper Bound, 1960, 24 pp.

Given identity as Management Bulletin No. 5 of the A.M.A., this pamphlet passes on to readers two papers: "Designing the Production Planning and Control Structure" by T. Russell Downey and "Measuring the Effectiveness of Production Planning and Control" by Edward Hemenianm. The papers are noted prefatorily as excerpted from A.M.A.'s "Modern Approaches to Production Planning and Control" because of their broad applicability in manufacturing.

Practical Control of Office Costs

Maynard, Arken, and Lewis, Management Publishing Corp., 22 West Putmann Ave., Greenwich, Conn., 1960, 160 pp., $12.75.

This is a "program" book offering and illustrating methods of work measurements, process charting, performance analysis, etc. The authors are members of a single firm active in the consulting and methods field. The technique described is embraced in the term "universal office controls."

How to Operate a Restaurant

Dukas and Landberry, Ahrens Publishing Co., 230 Park Ave., New York, N. Y., 1960, 276 pp., $5.95.

It can be well imagined that cost and statement presentation find a prominent place in this volume, although not prime emphasis. Most specific to accounting are chapters on "The Dynamics of Accounting" and "'Let your Profit and Loss Statement Work for You".

Planning and Justifying Capital Expenditures

Arthur J. Tesser, Jr., Editor, Engineering Economist, Stevens Institute of Technology, Hoboken, New Jersey, 1959, Paper Bound, 90 pp., $4.

Reproduced here are papers and discussions offered at a 1959 summer symposium of the Engineering Economy Division of the American Society for Engineering Education. Among aspects of the subjects covered by the presentations are experiences in capital budgeting and post-auditing, the part played by taxation in business decisions and the intriguing topic of "evaluating uncertainty."

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